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Table of Contents

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ORIGINAL ARTICLES— Page

The R. H. Fetherston Memorial Lecture: The Anxieties of Pregnancy, by D. F. Lawson .. 161
Bretylium Tosylate: Long-Term Clinical Trial of New Hypotensive Agent, by Douglas Stuckey 166
Acquired Tolerance to Bretylium Tosylate ("Darenthin") in the Treatment of Hypertension, by R. L. Hodge and J. M. McPhie .. 169
The Epidemiology and Prevention of Acute Accidental Poisoning in Childhood, by F. W. Clements 172
Accidental Ingestion of Poison in Childhood, by W. G. Grigor 175
Muscular Effort and Posture in Hiatus Hernia, by C. Craig 178
The Significance of Meconium Staining of Liquor, by Barry G. Wren 180

REPORTS OF CASES—

A Death from Overdosage of "Tofranil", by Charles H. Noack 182

REVIEWS—

Released Mental Patients on Tranquilizing Drugs 182
The Anti-Globulin (Coombs) Test 183
Pain 183
Care of the Surgical Patient 183
Maudsley Personality Inventory (Test Set) 183
Surgical Treatment of Bone and Joint Tuberculosis 184
Antibiotic and Sulphonamide Treatment 184

BOOKS RECEIVED 184

LEADING ARTICLES—

The Staphylococcus in General Practice in Australia 185

CURRENT COMMENT—

A Medieval Surgeon 186
Organic Nitrates in the Treatment of Angina Pectoris 187
Is Nutrition a Function of the Vessels? 187
Chair of Ophthalmology in University of Sydney .. 187

ABSTRACTS FROM MEDICAL LITERATURE—

Obstetrics and Gynæcology 188

BRUSH UP YOUR MEDICINE— Page

Rheumatic Fever 190

CONGRESSES—

WHO Tuberculosis Seminar 190

BRITISH MEDICAL ASSOCIATION—

New South Wales Branch: Scientific 192

OUT OF THE PAST 193

OBITUARY—

Walter Paton MacCallum 193

CORRESPONDENCE—

The Organization of the Profession 196
Medical Benefits—for a Specified Disease 196
Central District Ambulance Headquarters Appeal .. 196
Medical Research in Australia 197
Post-Graduate Degrees for Experienced Doctors .. 197
General Pharmaceutical Benefits 197
Surgery and the General Practitioner and Professional Unity 198

POST-GRADUATE WORK—

The Post-Graduate Committee in Medicine in the University of Sydney 198

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA 199

NOTES AND NEWS 199

NOTICE—

Ophthalmological Society of New South Wales .. 200

NOMINATIONS AND ELECTIONS 200

DEATHS 200

DIARY FOR THE MONTH 200

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 200

EDITORIAL NOTICES 200

The R. H. Fetherston Memorial Lecture.[1]

THE ANXIETIES OF PREGNANCY.

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WHEN a man takes to politics at the end of what has obviously been a full and busy life, it is interesting to speculate on the motives of this venture. In these days, when it is considered normal to have a cynical attitude to politics and politicians and never to call anyone a statesman until his obituary or later, the normal reaction would be to ask what was in it for him. In a life that has seen a medical man become a leading light in his specialty, one-time chairman of the Victorian Branch of the British Medical Association and head of the Royal Australian Army Medical Corps, it is hard to imagine that there were many unsatisfied wants. R. H. Fetherston entered politics at such an age that it was obvious that he could never become a political leader; but the fact that he could not hope to attain eminence in that sphere does not mean that he could not do anything useful.

I do not believe that the cynical attitude to politics is necessarily correct. Idealism does enter into it, and the urge to achieve something useful, along with the realization that it is only through political means that certain desirable advances can be made. Particularly is this so in the sphere of what is called social medicine. Social, political and medical progress go forward hand in hand, just as they can go backward together.

Towards the end of a busy life, it could well be that a thoughtful man, having explored all the therapeutic methods available, would conclude that further progress in health matters depended upon general social betterment, and that this could be helped by political activity. I can well believe that it was this that led Fetherston into political life and so to a rather tenuous link with myself, in so far as he became a member of the party of which my father was a leader. My other link with him is that he had, as I have, the privilege and responsibility of being a member of the honorary staff of the Royal Women's Hospital.

Fetherston founded this lecture to permit ventilation of matters relating to maternal mortality and morbidity. Maternal mortality has been reduced drastically since his day; but the fact that more and more centres are establishing maternal mortality committees reminds us that the problem is not yet completely resolved. The lessening incidence of maternal mortality seems to have heightened its tragedy when it does occur. Maternal morbidity of a physical nature is less, too, and we have greater facilities for dealing with it when it does arise; but there is no evidence to suggest that there is any diminution in the

[1] Delivered at the Medical Society Hall, East Melbourne, on August 19, 1959.

mental problems associated with pregnancy. Some people do suggest that we have more of these problems to deal with; but I think we are just more aware of them than we were, because we do not have the same worries about the physical risks of pregnancy. The struggle for survival being less, we can be more concerned with the refinements of living. Fetherston's history suggests that he must have been aware of these problems of anxiety, which often have a social basis, and it is for that reason that I have chosen to speak about them.

Life is full of constancy and full of change. The lines of the marriage service remain constant to remind us that marriage is not a state to be entered into lightly; but having married, no girl enters into her first pregnancy with any other thought but that she will survive. Thanks to the advances of the last 40 years, of which you would all be aware, this is the situation now, but it has changed since Fetherston's day. However, pregnancy does not alter a person's basic personality or mental equipment and robustness, and it is unusual for it to lessen any anxiety from which she may suffer.

Investigations into the reasons why people consult doctors, always seem to provide the same answer—that anxiety or mental uneasiness heads the list. The chemist at the corner tells me that 25% of his prescriptions are for sedatives or tranquillizers, and that takes no note of the millions of aspirin and relaxing tablets sold over the counter. Nor does it take note of the fact that hordes pour into the hotel next door to relieve anxieties at that shrine. It is this seemingly well-established fact that has led to demands for alteration in the emphasis of the medical curriculum and, for the devotion of more time to the cause and management of these problems.

Anxiety we must recognize to be a normal and continuous component of living. A mother worries whether she will breast feed her baby or whether cow's milk will agree with him. She worries because she is certain that her two-year-old will fall off the trellis when he first starts to climb. She sings Gracie Fields' song to make sure he will look both ways before crossing the road on the way to school; she worries whether he will pass his examination and whether he will marry the right girl.

The normally endowed individual will deal with these problems by calling on his own resources. It is when these resources prove inadequate and the anxiety affects mental or physical efficiency that help is sought and patients come to see us; and as I have said, they come in droves.

The origins of anxiety are legion; so, too, must be the means by which they are relieved. Unfortunately the cause of an anxiety is not always readily apparent—in fact, all too often the cause is extremely difficult to determine, or if we do know what is causing the anxiety, it is something we cannot change. However, when we find the cause of a pressing anxiety obscure in an insistent patient, we find ourselves guessing about the advice we must give. Hence it is we let slip, sometimes because we believe, sometimes in desperation "you will be better when you get married", "you will be better when you have a child".

Marriage and pregnancy are situations that demand the acceptance of new responsibilities. They are potential sources of new anxieties, and anxiety is not a situation in which" a bit of the hair of the dog that bit you" is any good. Marriage and pregnancy are commendable institutions, and that is what they should continue to be. We must not delude ourselves they are something we keep in our drug cupboard, or something that is part of our therapeutic armamentarium. Marriage and pregnancy are likely to make our patient need our help more, not less.

We are all taught that bacteria and viruses have their virulence enhanced by animal passage. As anxieties are hawked from doctor to doctor, they can and do become more deep-seated and destructive; their virulence is heightened by doctor-passage, so it is that the best person to deal with an anxiety is the first doctor to meet it and to realize that it exists. Hence the obstetrician must deal with the anxieties that arise in pregnancy and as a result of pregnancy, as well as the anxieties which the patient may have had before the pregnancy began. These conditions will impair the patient's efficiency as a mother, and it is an integral part of the obstetrician's function to deal with them.

Anxieties Related to Parental Attitudes.

One of the problems is that father does not want the child. As a rule there is nothing to do about that situation except to await the child's arrival. Nothing can more effectively talk its way into a hard heart than a helpless, wordless child, and this is what happens except in the most depraved or really mentally ill fathers. It is necessary to keep assuring the mother during the pregnancy that she must be patient and keep a still tongue, and that the baby will work the problem out for her. It is not easy for her; but we must urge her to do it and support her while she does it.

There are unfortunately odd occasions when the situation is just too much for father and he walks off the job. The family may then be in such financial straits that mother has to farm the children out and go to work. The family, as a unit, is destroyed. It is worth knowing that the deserted wife can get an allowance, the children can become State wards, and the real mother can become the foster mother. The additional allowances payable under these circumstances may enable the mother to stay at home with her family and so preserve its unity.

Some wives willingly become pregnant because it makes them the centre of sympathy and attention. Pregnancy is a form of exhibitionism and the last thing wanted is the responsibility of a child. These people want the pregnancy to do something for them, but they do not want to do anything for it, and become sulky when it is suggested that they should. One such patient's reply to everything I suggested was: "Does it really matter?" "Is this really important?" I put up with this for about five months, and finally said to her: "This child did not ask to be conceived, and it is not asking to be born, but it is conceived and it will be born. The least I can expect you to do in the child's interest is to do what you can to make it a healthy one. Your own and the child's life will be an easier one if you are both healthy." We do not very often have to talk to patients like this, but to speak up for the baby is part of the job. It is our right, and at times it is our duty to do so. Although patients pay us, they do not buy us, and if it is in the interest of all to reprimand a patient, we should do so.

Anxieties Related to the Effect of the Pregnancy.

Anxieties arise because of the effect a pregnancy may have on the material situation. A recent article in one of the weekly magazines, which stated that it was quoting American experience, suggested that only 17% of women becoming aware of a pregnancy were pleased about it, the major reason for the displeasure being the financial burden that the child would create. Often women do not want to become pregnant whilst they are still living with their in-laws. They say, "we cannot afford it", "we will not be able to educate this one"; or, "if it's a girl we will need an extra room". These are real problems which do make patients very unhappy, even if only temporarily so. In the vast majority of cases this unhappiness is temporary; by the time the baby moves, the patients have become reconciled and happy about their state.

These problems, and this unhappiness, which seem short in retrospect and a long time when it is being lived, mostly arise as a result of the organization of the society in which we live. We are part of our society, and so we partake of the collective responsibility for this situation. But we do not feel collective responsibility, and do not feel personally responsible for what our society does to its individual members. However, the individual patient is our individual responsibility, and we must accept that it is our responsibility to listen to a recital of these

problems, no matter how well we know them, or how often we have heard them.

One of our most important therapeutic weapons is the capacity to be or appear to be an interested listener, and we must be prepared to use it at all times. Patients will say things to us in the privacy of our consulting rooms that they would not dare say at home. By allowing or encouraging her to "boil over" and thus achieve emotional stability, we can do the patient and her family a tremendous service. Very often what happens is that by talking out their problems to us, patients see the answer for themselves and then give us the credit for their own wisdom. There is nothing like talking over a major problem with someone to reduce it to its proper triviality.

The Physical Anxieties of Pregnancy.

From a physical angle there are, in general, no great anxieties about the normal primipara. A normal, healthy person enters on her first pregnancy with an optimism that we share. Pregnancy should be a normal function, and this being so, there is no contraindication to the leading of what is the normal life for that individual. Often patients do not believe this, and imagine that they should be wrapped in cotton-wool for nine months. If doubters think that work is harmful, I ask them how the mother of seven manages when she is having her eighth. I do not see why pregnancy should deprive anyone of her normal pleasures. A family will usually do this soon enough, or restrict opportunities for their indulgence; so during pregnancy patients should be encouraged to make the most of their "last days of freedom".

When anxiety does arise in a first pregnancy, it can be because the patient's mother died in childbirth; but it is usually because a sister or a sister-in-law has had a spastic, malformed or stillborn child. Perhaps the worry is because there is a family history of epilepsy, or some disorder that is imagined to be familial. We deal with this situation by reassurance and by looking after our patient as well as we can. It is a comfort to a patient if she is convinced that her doctor is really interested in her and thorough in his attention to detail. This interest gives the patient that wonderful medicine called reassurance.

It is in pregnancies after the first that what might be called the real pregnancy anxieties arise. They arise because the first pregnancy, entered into with joyful expectancy, has produced tragedy or has created a situation disrupting family life. The baby may have been dyspeptic, and every combination of every type of cow's milk has been used before the family buys a goat. Maybe the child has been severely eczematous—a circumstance that can put a tremendous strain on a family. Naturally the patient fears a repetition. Some patients will never risk a repetition. Unfortunately there is nothing we know that we can do to a patient either before or during a pregnancy which will certainly preclude the possibility of a recurrence of these conditions. We reassure, we hope, and the only comfort is that the experience gained in handling the problem the first time makes easier the management of it on the second occasion.

When the baby has been lost either because fœtal death has occurred before or during labour, or when the child has been spastic or deformed, there is naturally considerable apprehension in the next pregnancy. We know these mishaps can occur for a multitude of different reasons, but to the patient they are all one. The pregnancy went astray.

We deal with fœtal death in utero by treating a treatable cause if there is one. Toxæmia can kill babies in utero; so can syphilis. Toxæmia has a lessened incidence in pregnancies after the first; but even this lessened incidence can be reduced by pre-conceptional conditioning, and by adequate ante-natal care.

It is a comfort to us that patients can have their first child only once. Stillbirth or spasticity as a result of pregnancy or labour, or our management of it, most commonly occurs after first pregnancies. The uterus that is inefficient in a first labour is usually efficient subsequently. This is a comfort to us, which we should explain to, and share with, our patients. It is a factor which operates in our favour—often in the specialist's favour, because patients frequently come to a specialist when they have lost the first child, and when the second labour is uneventful, give credit to the specialist for what would have happened anyhow.

We have this knowledge to assure patients, we have statistics and our own personal experience to assure patients, and it does give them intellectual assurance a good deal of the time, but not all of it. We live emotionally as well as intellectually, and these patients are subject to recurring emotionally-induced bouts of cold fear and anxiety that stay with them until they have an obviously healthy baby to cuddle.

I tell patients that they will suffer these doubts and fears and that it is something they have to live with until the end. When patients know that they will be reacting in this way, and realize that such reactions are normal, they worry less about them. Patients realize, from what we tell them, that other people have been through what they are going through and have survived it. This is some comfort to them.

Another facet of behaviour is sometimes demonstrated by people who have had premature infants. The behaviour of patients who have had premature babies is sometimes interesting and less trying when it is understood.

This was illustrated by a patient who had had a normal full-time child in her first pregnancy, and for no apparent reason had had a premature labour in the second pregnancy; the child lived only 48 hours. In the third pregnancy, at every visit to my rooms she was up and down in the waiting room, and going to the office every five minutes—"How long will he be?" "When is it my turn?"—until eventually her visits were dreaded by my staff. Then one day she came in and waited an hour and a half, with a calm serenity that was quite out of pattern and seemed quite illogical until it was realized that she had passed the stage of pregnancy at which she had had the premature infant that had died. From then to the end she was the easiest of patients to deal with.

Doctor-Induced Anxieties.

It is a pity to have to report that there are iatrogenic anxieties in pregnancy. Iatrogenic is a bad word; it sounds more learned than doctor-induced anxieties, but of course it is an evasive way of saying just that.

It is important to recognize that we are responsible for many patients' anxieties, and nurses too have their share of responsibility in this matter. It is just as important for nurses to remember that their word has a great deal of authority, just as a doctor's word has, and what to a nurse or a doctor is often a meaningless aside is not interpreted in this way by patients.

Doctors do tell patients that they are "small made", or that the womb is twisted and that they will either not become pregnant or are likely to miscarry if they do so. This long-range forecasting is not without its dangers, as a few single girls I have seen have learned to their sorrow.

The over-cautious doctor, who is quite different from the careful doctor, is inclined to see every pregnancy as a miscarriage, and guards against this mishap and imagines he guards his reputation, by anticipating the gossip of the street, which always knows how miscarriages could have been avoided. In guarding his reputation with the neighbours, he scares his patient into a state in which she spends her life as a frightened existence precariously hanging on to her pregnancy. Even if the first pregnancy has miscarried, the prospects that the second one will be successful are so good—90% to 92%—that I do not believe any particular treatment or precautions are necessary, nor is any pessimism justified. After one miscarriage the only note to strike is one of optimism, for tackling a problem with optimism is mentally much better for a patient than approaching it with fear and pessimism. Tactically and statistically this is the correct approach. It is the approach that will achieve the greatest good for the

greatest number, and is one from which we should deviate only with very good reasons.

At times a doctor's attitude encourages people to think that at the time when a patient would have menstruated, she is particularly susceptible to trouble, and so many patients heave a sigh of relief when they feel that the period that they did not have has finished. There is no justification for this attitude, for the creation of anxiety at this time, or for the interruption of the normal tenor of existence.

Nowadays people become anxious about weight gains in pregnancy. This anxiety can be made to serve a useful purpose in so far as we can use it as a means of discipline; but it is important to remember that the attitude to diet should always be that what we eat is more important than what we avoid. A talk on what constitutes a good diet should always precede admonitions about what should be avoided.

There is a quite well-founded anxiety about the adverse effect rubella may have on the fœtus in the early months of pregnancy. This has unfortunately created an atmosphere to which I suspect we doctors have contributed, in which patients fear that any virus infections at any stage of pregnancy can result in the birth of a malformed child. There is no conclusive evidence at all that any other virus has been harmful, and yet if we are not careful we will have created an atmosphere in which people are almost frightened to get a cold. There has been work recently published, which established that when pregnant patients developed Asian influenza there was no adverse affect on the fœtus, and this work would not have been done if this atmosphere did not exist.

Some people suggest that a patient is happier if she is given some reason for a mishap. That may be so; but when the reason which is given is tentative, unalterable or likely to be recurrent, we must be very careful. Explanations which satisfy an individual may strike fear in a wide circle of friends. Personally I do not think that there is anything wrong with being completely honest and saying, "I do not know".

Recently I had a letter from a patient's sister. This girl knew someone who had had a malformed child—the malformation being attributed to influenza. Her sister had had a bad cold early in pregnancy, and as the letter writer said, "I am terribly worried for her". The chances that a patient will have a cold or influenza during a pregnancy are quite considerable, so there is plenty of potentiality for worry in subsequent pregnancies; but as well, all of a wide circle of friends and acquaintances throw this explanation around creating fertile soil for anxiety when pregnancy ensues in anyone aware of it.

When a patient is told that the cause of her premature labour is grandmother's diabetes, and grandma is firmly ensconced in heaven, it is a situation from which there is no escape. I had one such patient; her first child was premature for no apparent cause, except grandma's diabetes; her second child was premature for an obvious cause. It took the third child—a normal, full-time one—to debunk grandma and restore that girl's self-confidence.

Either we should tell patients that we do not know, or we should offer explanations that do not provide a source of continuing anxiety (like grandma's diabetes or next year's cold) or are harmful to the peace of mind of a wide circle of friends and potential patients. It is not unreasonable to expect that we should think of the social implications of what we say.

Retrospective surveys are notoriously misleading, and those which are conducted after the birth of malformed children are no exception to this rule. There are many trivial occurrences in every pregnancy; but patients, who in general think doctors are clever people, do not think clever people would ask questions that have no point or purpose. So it is that things we ask about, which we may think trivial, are assumed by the patient to be important, and this leads her to make groundless assumptions with which she scares herself and her friends, creating an atmosphere of apprehension that can only be harmful.

An exaggerated importance is attached to "shows" in early pregnancy by some people. Half the time the cervix will not have been inspected to see if the "show" has come from a polypus or an erosion. Pædiatricians sometimes think these things important; but they do not see all the normal babies born of people who have had a "show" in pregnancy. I know that, in my own practice, if there was an ætiological relationship between "shows" in early pregnancy and malformed children, I should be delivering a malformed baby every week, and that does not happen. Burge (1951) put this matter in its proper perspective.

After a toxæmic or eclamptic pregnancy, even after a miscarriage, patients are told that they should not become pregnant again for some nominated time; after eclampsia for example, two years seems to have been the favoured time. Often that was all the patient was told—"no pregnancy for two years"; but no advice was given as to what to do in those two years—no advice as to how to avoid pregnancy for that time. It leaves patients in an unhappy state which is aggravated when they become pregnant in less than the specified time.

The correct time to wait before the next pregnancy is the time that it is necessary to spend to get the patient into the best possible physical condition to embark on a pregnancy, and this time will depend upon the vigour with which the objective is pursued. I believe any person can get into peak condition within four months.

One thing that I am careful not to do, and about which you may not agree with me, is to keep taking a patient's blood pressure after a toxæmic pregnancy. The blood pressure will return to normal in the vast majority of cases; but if we keep taking it, patients can easily develop a complex about it. I take the blood pressure of these patients when they come back to see me at my rooms for their post-natal check, and as they have had their blood pressure taken on every other visit to the rooms, that just seems to them to be the normal procedure. If a patient in a four-bed ward is the only one having her blood pressure taken, quite obviously she will begin to think that she is different and that there is something wrong with her.

The Rh-negative status is something which has been blamed at one stage or another for almost all obstetric ills, but it is responsible for one thing and one thing only—erythroblastosis. You all have patients who anxiously ask, "Have I got the Rh, Doctor?". If patients are Rh-negative, for the vast majority it does not matter at all; but it is hard for a patient to believe this if repeated blood tests are done. If there is no clinical sign of its effect in the first pregnancy, and in the absence of blood transfusion this is exceptionally rare, the chances that the second child will be so affected that there is any indication for induction of labour before the thirty-eighth week are so small that for practical purposes they can be ignored. For this reason, the first test for antibodies that I would make would be at about thirty-fifth week in the second pregnancy. V. I. Krieger (1958) in an article very aptly titled "The Problem of Apprehension in the Rh-Negative Mother", has shown that at the Royal Women's Hospital, to which mothers with bad histories tend to gravitate, approximately 6% of babies were affected and the fœtal wastage was slightly under 1%. This risk rate does not justify giving 100% of Rh-negative mothers an anxiety state; so frequent blood testing, I believe, should be done with considerable discrimination.

The final doctor-induced anxiety is that brought about by people who will not admit they are out of their depth and ask for help when they should. Help is readily available to city doctors, and I know, as other consultant obstetricians know, many country doctors who think a trunkline call a good investment in the interest of their patient.

The sort of thing I mean is illustrated by the patient, aged 38 years, whom I saw recently. She had a spastic child aged four years—spastic as the result of a long labour and difficult breech extraction in a hospital readily accessible to half a dozen people well trained to deal with just this emergency. To this patient it was four years of heartbreak

looking after a defective child, and she had taken those four years to pluck up the courage to begin to think about another pregnancy.

Some necessary obstetrical manœuvres carry a high infant mortality and morbidity. The "give it a go" attitude, or the ego that induces people to embark on difficult procedures in which they have little or no experience, weighs lightly in the scales against the stillborn or spastic child. Other patients have been known to report, after a difficult labour and a stillborn child, that the doctor said: "I was lucky to save you. You mustn't have any more children. I couldn't stand the strain." It is not an encouraging statement for a girl in love with her husband and torn between her desire for a family and her fears.

Perhaps the people who teach obstetrics are partly to blame for this, because they do not emphasize the difficulty and risks of certain obstetrical manœuvres. Teachers have inhibitions about saying that some manœuvre that they are demonstrating and, because of their skill, making look easy and safe, is risky and should be embarked upon only by people of considerable experience. They feel that this sort of talk is pushing their own barrows, which they do not want to be accused of doing. Perhaps it would be better to throw off this restraint, and say: "This is something I can tackle because of 10 or 20 years of intensive training and experience."

The Obstetrician's Anxieties.

Finally, I come to the anxieties that beset the obstetrician, as distinct from those with which the patient has to contend. Collectively, we who practise obstetrics either as doctors or as midwives preside over the birth of the nation, and with a properly developed social conscience we would be wondering what beneficial influence we could exert upon it. Obviously the work we do is important, and one might ask whom one gets to do important work. The answer is important people.

I think it is proper that we should have this attitude to ourselves and to our work, not so that we can strut, but because, if we continuously realize that what we do is important, we are likely to do it better. You have all heard the exchange: "What's in the labor ward?". "Oh, only a couple of multis." Multiparæ are the ones with more work and greater responsibilities, so we should have an attitude of responsibility to them that would mean the end of this sort of conversation.

Some years ago, at Newcastle-on-Tyne, a three years' survey of 1000 families, members of which had attended the Department of Child Health, was conducted by medical officers and social workers from that unit. The statement was made in their report, that "a family can survive a drunken and even vicious father, but seldom can a family survive if the mother fails". Obstetricians and midwives, whose responsibility the mother is, should try to remember that phrase. It could well be our motto. Psychiatrists, social service workers, criminologists, children's welfare departments, can all tell you that it is unstable and broken families that keep them in a job. And the Newcastle-on-Tyne work makes us appreciate that it is the unstable mother who can have the most adverse effect upon the family.

One of the first Australians to act upon the realization that a stable family life was of vital importance in the development of normal people, and to realize the value of living in a good family, was a South Australian—Catherine Spence. I call her Australian, but she was a Scot who came to this country at the age of 13 with her Scottish family to take up land. She grew up as a serious-minded young girl whose pity was aroused by the hopeless state of the orphans she saw crowded, along with destitute adults, into barn-like barracks in Adelaide. She could not get over the helplessness of these children, many of whom were Irish orphans who came out after the famines of the 1840's. On one occasion a party of them was being taken for a picnic, and she held up a shining sixpence (something for a Scot to do) and said it was for those who could do their own hair. There were no takers. This helplessness was in great contrast with the behaviour of the members of the families she knew. Her way to cure this helplessness was to get these children into a family. Catherine's energy and drive eventually induced the Government to allow these children to be sent out to foster parents—foster parents who were selected and also supervised—and their development in the new environment was a delight to her. Catherine Spence said: "There is nothing so costly to the State as a ruined life." Her endeavours to get these children a family life was her way of preventing their costly ruination.

Catherine Spence's pioneering work excited world-wide interest, and I doubt whether her name is honoured as much in Australia as it should be. Foster children and State wards are still with us. There are well over 2000 in the care of the Child Welfare Department in this State. The estimated cost of the support of these children is something over £1500 *per annum* each, and despite the best efforts of all concerned, many of these lives do not turn out happily, and continue to be a costly burden to the State because of vandalism, delinquency or criminality that often develop in these children. These are never happy people, so it is a wasteful situation both from the humanitarian and from the material point of view.

Bad children become bad parents, and the situation is a self-perpetuating one. I am told that already on the books of the Child Welfare Department of this State there are third generation State wards. About 1900 or 1910 some obstetrician delivered a baby into a family that did not hold together. That baby became a State ward, a bad child and a bad parent, and so built up another family that produced children that went through the same process. We can assume that in 1959 obstetricians are delivering babies that will have the same future.

Obviously we should ask what we can do about it. The first thing is that we should do all we can to assure good physical health for the mother during pregnancy, and conduct the labour in such a way that after it she is physically fitted for the task of rearing the child, a much more arduous one than having a child. Healthy children place less strain on a family and a marriage than unhealthy or damaged children, so obviously we must deliver the children in as efficient a manner as possible. Then babies will have a minimum of disability which can be attributed to the trauma of childbirth. We must try to be honest about post-partum hæmorrhage. You are all aware that when we say "she lost a pint", most of the time she has lost two pints. In the Melbourne *Herald* each night you will see listed the names of people who have been granted divorce and the reasons for the divorce—desertion, cruelty, misconduct, etc. The learned judges have not yet been told about post-partum hæmorrhage, which produces an anæmic, tired, irritable mother, who is always complaining, driving father to drink and desertion or to solace in somebody else's arms. They could justifiably add it to their list.

The obstetrician has a particular duty when dealing with single girls who become pregnant. This is a big problem. In Australia in 1958 almost one in 20 of all births were to unmarried mothers, 10,000 in all.

When you see a single girl who is pregnant, I think there are two questions to ask: "Do you love him?". "Can you marry him?". If the answer to both is "yes", you urge the girl to get married. I think it very wrong to marry for no other reason than to make a birth legitimate. Those who live by the sword perish by the sword. Those who marry with a shotgun are inclined to find the marriage dissolved with a shotgun.

The prospect of the unmarried girl or of her family adequately caring for a child and giving it a normal environment and upbringing is so small that I believe for practical purposes it can be ignored. I believe that in all such cases the obstetrician should urge that the child be adopted. In recommending that a particular child is fit for adoption, we tend to err on the side of over-cautiousness. "When in doubt, don't" is part of the wisdom of living; but over adoptions I would suggest that "when in doubt, do", should be the rule.

Heredity is important; but everything we hear from child health specialists tells us how important is the right environment for normal mental and social development. To them environment is almost everything, and I believe that a good environment will make a better job of bad genes than a bad environment will make of good genes. When you walk through the nurseries, you know that some babies are hungry, some have a belly-ache, but none of you imagine that they are stuffed full of original sin—the way they are cuddled and kissed as they are carried to their mothers makes this obvious. It is environment which pushes the sinfulness into these babies. Adoption brings joy to the adopting parents and the prospect of a better life to the child, and makes the life of the mother much easier. Often the experience matures the mother, and I have seen many happily-adjusted married women who have had a child out of wedlock.

The last thing that the obstetrician might concern himself with is the law in regard to adoption. All of you here belong to some club or another—the British Medical Association, the Royal College of Nursing, golf clubs, tennis clubs—and you all know that if you do not behave properly you can be thrown out. If you belong to a bowling club, you cannot trample on the green with hobnail boots; but you can trample on the face of everything that is decent and proper, and because of something which is called the sacred right of parents, you can never be thrown out of the parents' club. There are many welfare and foundling homes full of neglected children. To have children is to assume an obligation and to create the opportunity of rearing good people. When parents continuously neglect their obligations, should not they be deprived of their rights?

What happens again and again in children's homes is that the years go by, Christmas passes, birthdays pass, and there is no word at all to the children from the parents. When the children reach the age of 13 years and 364 days, parents appear to take them off to pocket their wages. Children so treated have little chance of becoming either good citizens or good parents; in fact, it is such children who keep criminal lawyers busy, and who grow up to produce children for the Child Welfare Department to care for.

Years ago diphtheria, dysentery and scarlet fever would at times decimate these homes. Natural selection played a part in keeping this proportion of the population down. Fortunately that does not happen now; but these children often grow up to be a burden to themselves and to the society in which they live. I believe that if parents have neglected their children, for a time and in a manner which could be specified, the children should then be available for adoption. I know it is true that the younger a child is when he is adopted into a family, the more likely is the adoption to be successful; but it is better to start family life late than not at all.

Conclusion.

All these things I think can be reasonably considered to be the concern and the interest of the obstetrician who helps babies into the world. It gives him a horizon as wide as life itself, and an outlook that should be incompatible with shoddy work—an outlook that Fetherston would want us to have. Who has a greater opportunity than the obstetrician of justifying this comment of R. L. Stevenson?

> There are men and classes of men who stand above the common herd, the soldier, the sailor and the shepherd not infrequently; the artist rarely; rarelier still the clergyman; the physician almost as a rule, he is the flower (such as it is) of our civilisation.

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BRETYLIUM TOSYLATE: LONG-TERM CLINICAL TRIAL OF NEW HYPOTENSIVE AGENT.

By DOUGLAS STUCKEY, M.D., F.R.A.C.P.
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THE present-day management of essential hypertension has much in common with that of diabetes mellitus. In both instances the ultimate cause of the disorder is unknown and no cure can be offered. In both instances drugs are available which will control some of the more obvious physiological disturbances present, and in both instances it is believed, but not fully proven, that adequate long-term control with drugs will prevent the development, or at least slow the progress, of vascular disease.

The search continues for an ideal hypotensive agent for the control of hypertension in man. Such an agent should, when given regularly, keep the blood pressure of the hypertensive patient within the normal range indefinitely without causing any uncomfortable symptoms or unfavourable side effects. Up to the present time the best results have been obtained by a combination of chlorothiazide or its derivatives with reserpine or hydralazine in the treatment of moderately severe hypertension, with the addition of ganglion-blocking agents such as mecamylamine in severe cases (Stuckey, 1959). In those patients requiring ganglion-blocking agents, side effects due to parasympathetic blockade continue to be troublesome in some instances, and in a few patients these side effects prevent adequate control of blood pressure.

There has been particular interest, therefore, in the introduction of bretylium tosylate ("Darenthin") by Boura *et alii* (1959). This drug selectively blocks the peripheral sympathetic (adrenergic) nervous system, but does not impair parasympathetic function or depress the central nervous system. Preliminary studies by Rosenheim and his group (Boura *et alii*, 1959) showed that sympathetic block could be demonstrated in man, and in hypertensive patients the blood pressure in the supine posture fell slightly and postural hypotension was produced. More extensive clinical trials have been reported by Smirk and Hodge (1959) and by Dollery *et alii* (1960). In Australia, short-term clinical studies have been carried out by Hayden and Boake (1960) and by Mackie (1960).

Materials and Methods.

Any drug producing its principal therapeutic effect by postural hypotension must inevitably have a narrow margin between effective control of blood pressure on the one hand, and on the other, untoward effects of hypotension in the erect posture, such as dizziness, faintness or syncope. It seems reasonable in the treatment of hypertensive patients to combine such drugs with other hypotensive agents which act in a different way. In the present investigation, chlorothiazide, reserpine and hydralazine have been used as adjuvant therapy.

The patients were an unselected series from hospital and private practice, the great majority of whom had been under personal observation and treatment with bretylium tosylate for several months or until the drug was discontinued for reasons which will be detailed below. Two patients (Cases 7, 10) had suffered from a previous cerebral vascular accident, and five (Cases 1, 4, 7, 13, 16) from attacks of left ventricular failure. Evidence of renal failure was present in six patients (Cases 1, 2, 5, 8, 15, 16), and three had frank malignant hypertension with papilœdema (Cases 1, 2, 5). A strong family history of hypertension and vascular disease was noted in five instances (Cases 2, 6, 15, 17, 20), and in three patients the hypertension was regarded as renal in origin (Cases 3, 5, 8).

The criteria on which these statements are based and the methods used in recording blood pressure and in initiating treatment have been detailed in a previous communication (Stuckey, 1959). Six patients from this earlier trial of chlorothiazide combined with other hypo-

TABLE I.

Patients Treated with Bretylium Tosylate.

Case Number, Patient's Age (Years) and Sex.	Changes in Optic Fundi: Grade.	Control Period: Average Blood Pressures.[1]	Adjuvant Therapy.[2]			Early Response.		Final Response.		Blood Pressure Control: Final Assessment.
			Chlorothiazide.	Reserpine.	Hydralazine.	Bretylium.[2]	Average Blood Pressures.[1]	Bretylium.[2]	Average Blood Pressures.[1]	
1 : 55 : M.	4	280/160 : 200	1000	0·5	—	1800	160/110 : 127	1800	220/150 : 173	Unsatisfactory.
2 : 48 : M.	4	250/160 : 190	1000	0·5	—	600	150/90 : 110	1800	230/130 : 166	Unsatisfactory.
3 : 38 : F.	3	260/150 : 186	1000	0·5	—	600	160/100 : 120	600	170/105 : 127	Poor.
4 : 63 : F.	3	230/160 : 183	1000	0·5	—	900	175/75 : 107	1200	175/75 : 107	Good.
5 : 44 : F.	4	230/140 : 170	1000	0·75	—	2100	130/70 : 90	1500	160/90 : 113	Fair.
6 : 50 : F.	3	240/135 : 170	1000	—	—	600	220/120 : 153	1200	230/130 : 163	Unsatisfactory.
7 : 54 : M.	2	220/140 : 167	1500	0·5	—	300	—	—	—	Unsatisfactory.
8 : 36 : F.	2	240/130 : 166	1000	0·5	—	300	115/80 : 92	300	125/80 : 95	Excellent.
9 : 52 : F.	2	235/125 : 162	1000	0·5	—	400	135/80 : 98	800	190/110 : 137	Unsatisfactory.
10 : 48 : M.	2	210/135 : 160	1000	0·5	—	600	115/90 : 98	1200	135/100 : 112	Fair.
11 : 64 : F.	3	220/130 : 160	1000	—	—	300	125/85 : 98	300	125/90 : 102	Good.
12 : 47 : F.	2	230/125 : 160	1000	0·5	—	200	140/90 : 107	900	175/120 : 142	Unsatisfactory.
13 : 49 : F.	3	210/125 : 154	1000	0·5	—	300	90/60 : 70	600	225/155 : 173	Unsatisfactory.
14 : 62 : F.	2	205/125 : 152	1000	—	150	900	140/80 : 100	900	150/80 : 103	Good.
15 : 44 : M.	3	215/120 : 151	500	0·75	—	900	140/90 : 108	1800	150/100 : 117	Fair.
16 : 64 : F.	2	210/120 : 150	1000	—	150	300	100/70 : 80	900	100/70 : 80	Excellent.
17 : 61 : F.	2	220/115 : 150	1000	—	—	600	125/70 : 98	600	150/85 : 107	Good.
18 : 41 : F.	2	190/115 : 140	1000	—	—	400	115/85 : 95	900	130/100 : 110	Good.
19 : 50 : F.	1	200/110 : 140	1000	0·5	—	300	140/80 : 100	300	150/85 : 107	Good.
20 : 34 : F.	1	165/115 : 132	—	—	150	900	140/95 : 110	900	140/100 : 113	Fair.

[1] Systolic and diastolic pressures, followed by estimated mean arterial pressure (millimetres of mercury).

[2] Daily dose, in milligrammes.

tensive agents have been included in the present investigation; two (Cases 9, 12) were included because control without ganglion-blocking agents was only fair; two (Cases 6, 17) had good control of blood pressure, but suffered from the side effects of ganglionic blockade, dry mouth in one instance and constipation in the other; one (Case 1) had poor control of blood pressure with the highest doses of ganglion blocking agents that could be tolerated; and the final patient (Case 13) felt so well that she stopped all treatment and presented three months later with a fresh attack of left ventricular failure.

Treatment in most instances was initiated with chlorothiazide and reserpine, or if the latter drug was not well tolerated, with hydralazine. This régime alone gives good control in many cases of moderate severity with estimated mean arterial pressures up to 150 mm. of mercury. If control was inadequate, bretylium tosylate was then added, commencing with a dosage of 100 mg. three times a day. The general aim of treatment was to achieve normal blood pressures in the erect posture.

Results.

The dosages of the various drugs used and the average blood pressure figures recorded in the standing posture during a control period, early in the course of treatment, and at a later stage, usually after several months' treatment, are shown in Table I. The assessment of the adequacy of blood pressure control has been based on estimated mean arterial pressures, calculated by adding one-third of the pulse pressure to the diastolic pressure as described elsewhere (Stuckey, 1959) according to the following scheme: excellent, up to 100 mm. of mercury; good, 101 to 110 mm. of mercury; fair, 111 to 120 mm. of mercury; poor, 121 to 130 mm. of mercury; unsatisfactory, more than 130 mm. of mercury.

The early response to treatment with bretylium tosylate was encouraging, and control of blood pressure at this stage could be assessed as excellent in 11 cases, good in 5, fair in 1 and unsatisfactory in 2, one of the last-mentioned (Case 7) being a man who on three separate occasions vomited after an initial dose of 100 mg. of bretylium tosylate.

A later assessment of blood-pressure control has been less satisfactory, and the results are set out in Table II, with the early results for comparison.

Of those patients with reasonable control of blood pressure (assessment fair or better), five have had to discontinue taking bretylium tosylate for various reasons, so that at the present time seven patients (Cases 4, 5, 8, 11, 15, 17, 19) out of the original group of 20 are continuing maintenance therapy with this drug. The reasons for discontinuing bretylium tosylate in the remaining 13 cases were as follows: no hypotensive effect, 1 case; left ventricular failure during treatment, 1 case; severe hypotensive attacks, 2 cases; severe side effects (vomiting 1, muscular weakness 3), 4 cases; drug tolerance, 4 cases; expense, 1 case. Some of these features will now be discussed in more detail.

TABLE II.

Blood Pressure Control.	Early Response.	Later Assessment.
Excellent	11	2
Good	5	6
Fair	1	4
Poor	1	1
Unsatisfactory	2	7
Total	20	20

Instability.

In some patients taking bretylium tosylate blood pressure readings fluctuate very considerably (Dollery *et alii*, 1960; Turner and Lowther, 1960), and this was a problem in five cases in this series. For example, a woman, aged 64 years (Case 16), whose blood pressure was easily controlled, giving average readings in the erect posture of 100/70 mm. of mercury, had at times severe hypotensive attacks with loss of consciousness, and at other times blood pressures of the order of 195/125 mm. of mercury could be recorded. Such fluctuations are probably due to irregular and incomplete absorbtion of bretylium tosylate from the intestinal tract (Dollery *et alii*, 1960). In patients with established vascular disease of the cerebral or coronary circulations, such rapid variations in blood pressure probably constitute an additional hazard. Stabilization is also rendered much more difficult.

Hypotensive Attacks.

Hypotensive attacks with syncope occurred in four patients and were severe and recurrent in two of them, in whom treatment with bretylium had to be suspended

on this account. Typically syncope occurs without warning during exercise, often while walking in the street, and recovery follows rapidly once the supine posture has been adopted. It has been suggested (Lowe and Rosenheim, 1960) that these attacks are due to failure to increase the cardiac output with exercise. As might be imagined, syncopal attacks cause a good deal of concern to both the patient and the doctor concerned.

Side Effects.

The usual side effects of ganglion-blocking drugs due to parasympathetic blockade are not found with bretylium tosylate; but others of a different type occur, and were severe enough in four instances to warrant suspending the drug. The side effects noted in this series were as follows: vomiting (1 severe), 2 cases; diarrhœa, 2 cases; muscle pains, 3 cases; marked muscular weakness, 3 cases; headache, 2 cases; dizziness or giddiness, not obviously postural, 4 cases; ectopic beats, 1 case.

Profound muscular weakness is an interesting and at times disabling symptom, which has been noted before (Smith and Hodge, 1959; Evanson and Sears, 1960), and which may not become apparent until the patient has been taking bretylium for many weeks. It has been suggested that this symptom is due to exertional hypotension (Lowe and Rosenheim, 1960); but in the cases in this series it was also sometimes present at rest or even during recumbency, and a more likely explanation (Mulcahy, 1960) is that it is due to neuro-muscular block, which bretylium has been shown to cause in experimental animals. Nasal congestion and parotid pain, which have been reported by other observers, were not noted in this series.

Tolerance.

In some cases the initially effective dose of bretylium had to be doubled or even trebled with the passage of time to achieve the same hypotensive effect. In others, the large dose necessary at first to achieve control of blood pressure was no longer effective at a later stage. Tolerance has been reported by most other observers, and was noted in 10 of the present series; in 4 cases it prevented adequate blood pressure control.

Discussion.

Any new hypotensive agent which acts by blocking the sympathetic nervous system with the production of postural hypotension must inevitably be compared in effectiveness with the standard ganglion-blocking drugs, which have the same mechanism, and whose place in the long-term management of hypertensive patients is well established. Such a comparison may be made between the first 14 cases in the present series and a similar group in a previous series treated with mecamylamine and the same adjuvant drugs (Stuckey, 1959). The two series are comparable in severity, and in each, all but two individuals had a control estimated mean arterial pressure of 160 mm. of mercury or more. The comparison in long-term blood pressure control is as shown in Table III.

Both these series included a large proportion of severe cases. The blood pressure was reasonably controlled (assessment fair or better) by bretylium in 6 cases, compared with 12 by mecamylamine; side effects were certainly present in some of the latter group, but were not of sufficient severity to prevent long-term treatment.

The main practical problem in using bretylium tosylate in the long-term management of hypertension is the unpredictability of its effect on blood pressure in many cases. This is due to instability and irregular action on the one hand, or to drug tolerance on the other, and one or both of these features may be present in a particular case. The individuals who will present a problem in this way can be determined only by trial and error, and this implies patience and frequent visits to the doctor.

Bretylium tosylate has a place in the long-term management of patients with moderately severe hypertension who do not show serious side effects, and in whom instability and tolerance are not problems. In such individuals the blood pressure can be effectively and pleasantly controlled, and for this small group of patients the drug is almost ideal. Because of its unpredictable effects in any given individual, bretylium cannot be recommended for the early treatment of malignant hypertension.

TABLE III.

Blood Pressure Control.	Mecamylamine.	Bretylium.
Excellent	5	1
Good	2	3
Fair	5	2
Poor	2	1
Unsatisfactory	—	7
Total	14	14

Summary.

Bretylium tosylate has been used, in combination with chlorothiazide and reserpine or hydralazine, in the long-term management of 20 hypertensive patients.

At the present time 7 patients continue to have satisfactory control of blood pressure with this drug. In the remaining 13 cases it has been discontinued, for reasons detailed in the text.

Instability of blood pressure and drug tolerance are the principal practical problems in the long-term management of hypertension with bretylium tosylate.

Side effects (vomiting in one instance, profound muscular weakness in three) prevented long-term treatment with the drug in four cases.

Bretylium tosylate has a place in the management of patients with moderately severe hypertension who do not have serious side effects, and in whom instability and tolerance are not problems.

Acknowledgement.

Dr. K. Severin Alstad, of Burroughs Wellcome & Co. (Australia) Ltd., provided a generous supply of bretylium tosylate ("Darenthin") for this investigation.

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Addendum.

A further two months have elapsed since this paper was submitted for publication. In that period of time a further three patients (Cases 4, 5, 8) have shown increasing tolerance to the effects of bretylium tosylate, making adequate control of blood pressure with this drug impossible. At the present time only four patients out of the original group of twenty are continuing treatment with bretylium tosylate.

ACQUIRED TOLERANCE TO BRETYLIUM TOSYLATE ("DARENTHIN") IN THE TREATMENT OF HYPERTENSION.

By R. L. HODGE, M.B., B.S.,[1]
AND
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THE development of a post-ganglionic adrenergic blocking agent, bretylium tosylate, offered a major advance in the management of hypertension (*Boura et alii*, 1959). These and other workers elaborated its pharmacological properties and reported clinical trials of up to six months' duration. The experience of Dollery, Emslie-Smith and McMichael (1960) with 50 patients was somewhat less impressive over a six months' period, owing either to a greater proportion of more severe hypertensive patients or to an acquired tolerance to the drug. *Boura et alii* (1959) observed the latter phenomenon in cats, and ascribed it to increasing peripheral sensitivity to adrenaline or nor-adrenaline. Hayden and Boake (1960) confirmed the pharmacological properties of the drug.

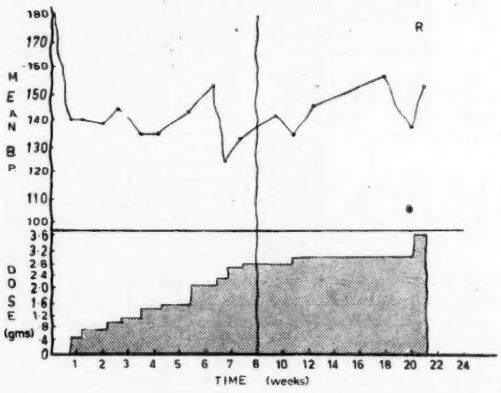

FIGURE I.
Drug dosage and mean blood pressure of the patient R.; the failure of treatment.

Both they and Mackie (1960) reported small clinical trials, and observed a need for progressive dose increase in some patients. None of these workers regarded drug tolerance as a serious threat to the efficacy of long-term therapy.

Our own experience in a six months' trial on a small group of patients has been less reassuring, in that we have found tolerance a serious problem. Six out of nine patients now require from three to ten times the originally effective dose of bretylium tosylate to maintain comparable, or even less effective, blood pressure control. It is to illustrate this feature that results of the pilot trial are presented.

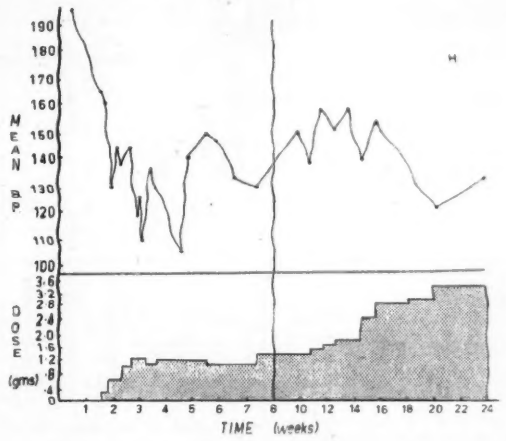

FIGURE II.
Drug dosage and mean blood pressure in one of the six patients developing tolerance (patient H.).

Material and Methods.

Nine patients were studied, six of whom had received hypotensive therapy previously. Four were males and five females, with ages ranging from 41 to 60 years. The period of follow-up investigation for these patients varied from 16 to 25 weeks. The relevant clinical and laboratory findings are summarized in Table I.

The minimum acceptable criteria for the trial were a blood pressure exceeding 100 mm. of mercury, diastolic, or 190 mm. of mercury systolic, associated with Grade II

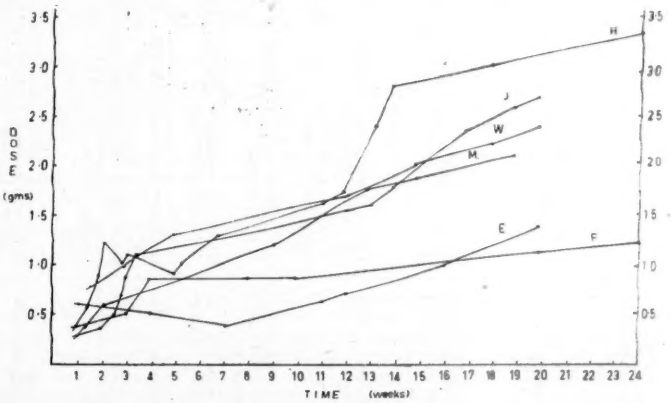

FIGURE III.
The rise of drug dosage in the six patients who developed tolerance.

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TABLE I.

Clinical and Laboratory Data of the Nine Patients Studied in the Trial.

Patient.	Age. (Years.)	Sex.	Previous Treatment and Complications.	Presenting Symptoms.	Blood Pressure. (Mm. of Mercury.)		Changes in Fundi.	Apex Beat.	Congestive Cardiac Failure.	Urine.	Intravenous Pyelogram.	Blood Urea Nitrogen Content. (Mg. per 100 ml.)	Electrocardiogram.
					Casual.	Resting.							
R.	42	M.	"Mevasine", constipation, impotence.	Increasing dyspnœa, orthopnœa.	200/160	160/120	Grade I.	Anterior axillary line.	Œdema; jugular venous pressure 3". Liver enlarged to 4 fingers' breadth; Crepitations at lung bases.	Trace albumin. Hyaline casts.	Normal.	23	Ischæmia. Infarction.
H.	50	M.	No previous treatment.	Severe dyspnœa.	240/150	180/120	Grade II.	Mid-clavicular line.	Mild œdema. Liver enlarged to 3 fingers' breadth. Crepitations at both lung bases.	Casts.	Normal.	17	Left ventricular hypertrophy and ischæmia.
J.	54	M.	"Serpasil", "Mevasine"; constipation.	1955: Thrombosis of spinal artery: Brown - Séquard syndrome. No symptoms at present.	230/135	170/115	Grade I.	Anterior axillary line.	Mild œdema only.	Normal.	Normal.	20	Mild ischæmic damage.
W.	60	F.	"Mevasine", "Chlotride"; severe constipation.	"Blackout" lasting 2 to 3 minutes.	250/120	250/110	Grade II.	Mid-clavicular line.	Nil.	Normal.	Normal.	—	Mild ischæmia.
M.	55	F.	"Mevasine"; depression, constipation.	Headaches, palpitations, mild dyspnœa.	200/140	180/120	Grade II.	Mid-clavicular line.	Nil.	Normal.	Normal.	14	Normal.
G.	43	F.	"Mevasine", "Chlotride".	Headaches, dyspnœa, visual blurring.	230/130	210/120	Grade II.	Mid-clavicular line.	Nil.	Normal.	Normal.	12	Mild ischæmia.
E.	46	F.	"Mevasine", "Serpasil" constipation.	Dyspnœa, orthopnœa, congestive cardiac failure in 1957.	220/150	220/130	Grade II.	Mid-clavicular line.	Mild œdema; jugular venous pressure 1". Liver enlarged to 1 finger's breadth. Crepitations bases of both lungs.	Casts. Leucocytes. Sterile.	Normal.	15	Left ventricular hypertrophy.
F.	55	M.	No previous treatment.	Hypertension found on routine examination.	180/120	Not admitted to hospital.	Grade II.	Mid-clavicular line.	Nil.	Trace of albumin.	Normal.	—	Left ventricular hypertrophy.
V.	41	F.	No previous treatment.	Mild dyspnœa, nocturia.	195/110	160/100	Grade I.	Mid-clavicular line.	Nil.	Leucocytes. Sterile.	Normal.	12	Left ventricular hypertrophy.

TABLE II.

Results of Treatment, Period of Follow-up Investigation, and Side Effects of the Drug.

Patient.	Present Dosage. (Grammes per Day.)	Period of Follow-up. (Weeks.)	Comment.	Side Effects of Drug or Symptoms During Follow-up.
R.	3·6	21	Bretylium discontinued. Rapidly rising dose with unsatisfactory control of blood pressure. Failure of treatment.	Stuffy nose. Regained potency. Otherwise very well.
H.	3·4	24	Tolerance increasing.	Nil.
J.	2·7	20	Tolerance increasing.	Nil.
W.	2·4	20	Tolerance was increasing. Discontinued at 20 weeks because of parotid pain.	Fatigue. Parotid pain, becoming severe.
M.	2·1	19	Tolerance increasing.	Fatigue. Heaviness in chest. Very unstable personality.
G.	0·9	16	Satisfactory control.	Nil. Short follow-up.
E.	1·0	24	Tolerance increasing.	Muscle and parotid pain. Some deterioration of vision.
F.	1·2	25	Tolerance increasing slowly.	Fatigue.
V.	0·5	19	Satisfactory control. Stable.	Nil.

retinal changes, or electrocardiographic evidence of left ventricular hypertrophy or "strain" (McPhie, 1958), or radiologically demonstrable left ventricular enlargement. The bretylium tosylate used was in the form of 200 mg. compressed scored tablets for oral administration.

On the patients' admission to the trial, treatment with chlorothiazide (0·5 gramme per day) was commenced, and this dosage was continued throughout the trial. All other therapy except digitalis was stopped. After approximately two weeks the patient was brought into hospital for the recording of his resting blood pressure. Readings were taken at least four times daily in lying and standing positions. The "resting B.P." (Table I) represents the lowest pressure recorded during three days of bed rest which were allowed to elapse before bretylium tosylate therapy was initiated. One patient was not admitted for stabilization, but a long series of consistently raised blood pressure readings over several years was available.

Bretylium tosylate was administered initially in doses of 100 mg. three times a day approximately half an hour before food. Daily dosage increments of 100 to 300 mg. were added as required. Patients were ambulant at this stage.

The blood pressure was recorded two hours after each dose of bretylium tosylate during the in-patient period. When the blood pressure was satisfactorily controlled the patient was discharged, and subsequently followed up as an out-patient at the Cardiac Clinic. Patients attended at least one morning and one afternoon each week, when the blood pressure was taken hourly over three hours. In Figures I to IV, the expression

$$\text{mean standing blood pressure} \quad \frac{(\text{systolic} + \text{diastolic})}{2}$$

is used for the sake of convenience.

Results.

During the early phase of bretylium tosylate administration, a material fall in mean standing blood pressure was obtained with all but one patient. This fall, over several successive days, averaged between 15 and 20 mm. in two patients, was from 20 to 25 mm. in two patients, and was over 30 mm. in the remaining four. It was in the longer-term maintenance and in stabilization of dosage that difficulties became increasingly apparent.

Figure I (R.) demonstrates the one case in which, after an initial limited hypotensive response and progressive dosage increments, no satisfactory control of blood pressure was achieved. The case was regarded as a failure of treatment, and bretylium tosylate was abandoned. Six cases fell into a second group, represented by Figure II (H.), in which a progressive increase in dosage has been necessary to maintain blood pressure control. Figure III shows the individual details of the gradual threefold to tenfold increases required over five to six months in these six cases. Satisfactory control in two cases has been maintained with a static dose. Figure IV shows an example (T.).

Table II summarizes the results to the present time. As in other reports, serious side effects were relatively few. One patient (R.), while taking a dose of 3·6 grammes per day (the highest in this series), suffered no side

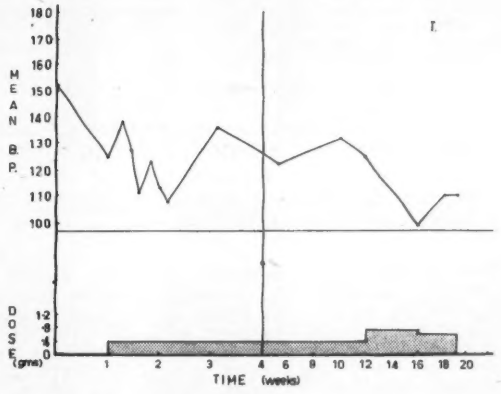

FIGURE IV.

Drug dosage and mean blood pressure in patient V., one of the two satisfactorily controlled by the drug.

effects. Some nasal congestion present at the commencement of therapy was only temporary. Two patients have complained of parotid pain, so severe in one (W.) that therapy has recently been stopped. Other complaints have been minor, and not ascribable with certainty to the drug.

Discussion.

Experience with bretylium tosylate is to date perforce limited, but all reported trials have demonstrated considerable individual variation in sensitivity to the drug, in its absorption, and in the development of tolerance. In our own series this last feature has proved noteworthy.

With the exception of one (R.), all patients showed a satisfactory initial response, and consequently first impressions were very favourable. However, the subsequent development of tolerance in six cases has become progressively more disturbing. In our experience it constitutes

the most serious practical objection to long-term therapy, particularly in view of the high cost of the large doses found necessary, and the frequent medical attendance required over a prolonged period. Furthermore, it has not been possible to predict, even in retrospect, which patients will acquire drug tolerance, or whether a stable dose can finally be attained.

Summary.

1. Nine mildly to moderately hypertensive patients have been treated with bretylium tosylate and a fixed dose of chlorothiazide.

2. In one case blood pressure control was not achieved despite an ultimate daily dose of 3·6 grammes.

3. In six cases adequate control was attained in the face of steadily increasing drug tolerance. In one of these treatment was terminated after 20 weeks because of severe parotid pain.

4. Two patients have been satisfactorily treated with a steady dose.

Acknowledgements.

We are grateful to those physicians who have referred patients and to Burroughs Wellcome & Co. (Australia) Ltd. for supplies of bretylium tosylate ("Darenthin").

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THE EPIDEMIOLOGY AND PREVENTION OF ACUTE ACCIDENTAL POISONING IN CHILDHOOD.[1]

By F. W. CLEMENTS, M.D., D.T.M., D.P.H.,
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THE physician is concerned with two aspects of accidental poisoning — its prevention, and its treatment when it does occur. Dr. Grigor has already presented some of the problems associated with treatment, both in the ward and through such agencies as a poisons information centre. My main concern is with the prevention of accidental poisoning. However, before this can be considered, it is necessary to review what we know of the epidemiology.

The Incidence of Accidental Poisoning.

It has been shown by a number of writers (Clements, 1956; Allan and Williams, 1956; Beveridge, 1956) that the peak of the incidence of acute poisoning occurs in children in the second and third years of life, with a sharp tapering off to the fifth year. Table I shows the place of acute poisonings in a list of the causes of death of children aged one to four years in Australia for the years 1956 to 1958 (source, *Demography*). From this table it will be seen that acute poisonings are ninth in importance, and are ahead of all viral diseases, heart disease, nephritis and nephroses. It is also worth noting that in this list four out of the first nine places are occupied by some form of violence.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on November 26, 1959.

[2] Endowed by the Commonwealth Department of Health.

In a community survey of the incidence of accidents sustained by children at any time during the first five years of life (Clements, 1955), it was found that accidental poisonings occupied about 6% of the total accidents. The distribution of those figures in the various age groups is shown in Table II. This incidence is similar to that which has been obtained by workers overseas (Haggerty, 1959).

TABLE I.

The Place of Accidental Poisonings in the Death Lists for Children Aged One to Four Years: Mean Figures for the Years 1956 to 1958.

Cause of Death.	Males.
Pneumonia and bronchitis	100
Motor-vehicle accidents	64
Congenital malformations	56
Drowning	53
Leukæmia	28
Malignant neoplasm	21
Gastro-enteritis	18
Burns and scalds	18
Acute poisonings	15
All viral diseases	15
Heart disease	8
Nephritis and nephrosis	6

The comparatively low incidence of poisonings in the total programme of accidents is due to the high incidence of falls, which constitute about 45% of all accidents.

Over the last 40 years there has been an over-all reduction of mortality of approximately 70% in the age group one to four years. It has been more dramatic in the infectious diseases and less so in total accidents; however,

TABLE II.

Relation of Acute Poisonings to Total Accidents: Australian Community Survey.

Age of Child. (Years.)	Male Subjects.		Female Subjects.	
	Total Number of Accidents.	Number Due to Poison.	Total Number of Accidents.	Number Due to Poison.
Under 1	241	8 (3·3%)	181	7 (3·9%)
1	642	36 (5·6%)	538	43 (9·0%)
2	1264	111 (8·8%)	590	54 (5·7%)
3	1296	52 (4·0%)	1042	25 (2·4%)
4	1138	22 (1·9%)	815	7 (0·8%)
5	808	3 (0·4%)	521	6 (1·2%)

for deaths due to accidental poisonings, the death rates have remained practically unchanged over this period of time. This is shown in Figure I.

The death rates from acute poisoning in children aged under five years in Australia are significantly higher than the death rates in the United Kingdom and the United States of America (Figure II). These results cover approximately the same periods of time. At the moment there is no explanation for the difference. These high rates are certainly a challenge. The first step should be a detailed study of the circumstances surrounding each death. There is every reason to believe that the coding of causes of death is sufficiently similar in the three countries to accept that the figures are comparable.

The several sets of figures demonstrate that death from acute poisonings is not one of the major causes of death in children in the one to four years age group. However, the condition does constitute a serious public health problem, and what is more, the prevention of poisoning means the saving of a whole life which is otherwise unaffected, in contrast to the situation associated with the prolongation of the life of a child suffering from one of a number of chronic diseases.

Epidemiology of Acute Poisoning.

Programmes designed to prevent accidental poisonings must be based on an adequate knowledge of the

epidemiology of the condition. Modern methods for the epidemiological study of a condition like accidental poisoning do not differ from those used in the epidemiology of communicable diseases. They consist of the execution of a number of orderly steps, which Clark (1955) has defined as follows:

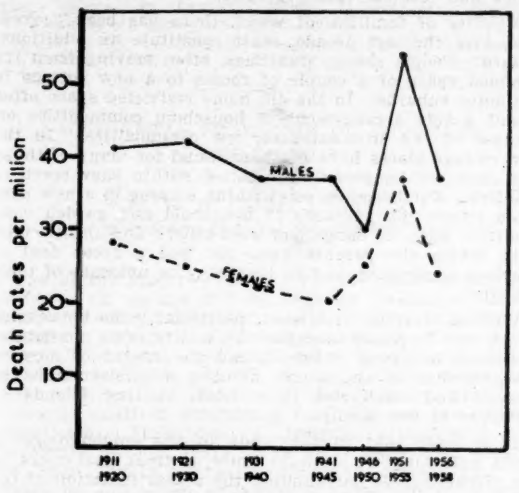

FIGURE I.

Trend of death rates for acute accidental poisoning in children aged one to four years (Australia, 1911 to 1958).

1. Definition of the nature of the problem and clarification of its objectives.

2. Collection, classification and critical appraisal of existing information so as to disclose gaps in knowledge.

3. Formulation of hypotheses and selection of those to be studied.

4. Testing of hypotheses, which involves the design and execution of the study, with careful attention to the unit of observation, selection of samples and controls and methods of collecting, recording, analysing the data.

5. Conclusions and practical applications, which include an evaluation of the study and a presentation of the results.

In the same connexion, Gordon (1949) has pointed out that we must consider an episode such as acute poisoning as "a result of ecological forces within a dynamic system made up of agent, host and environment". The various components of these three elements are shown digrammatically in Figure III.

Agent.

As a result of modern technology, there is now a wide range of household, farm and garden commodities which contain toxic substances; many contain more than one. Because of the familiarity of the average user with these products and their apparent harmlessness when used according to the maker's instructions, there is less care in their handling and storage than the toxicity demands.

The almost universal prescribing of proprietary preparations for the treatment of illness, and their apparent safety in the doses prescribed, have undoubtedly developed an air of carelessness in the average household about the great majority of drugs. However, many are extremely toxic if taken in excess by children; ferrous sulphate is a good example (Spencer, 1951).

A number of attempts have been made to learn more about the agents which may be concerned with acute poisonings in childhood—that is, about chemical substances now incorporated in non-edible preparations. Studies of toxicity are a good example, and elaborate tables of toxicity have been constructed. These are of limited value, for it often happens that the child who is poisoned is so affected because of increased sensitivity to the poison rather than the specific toxicity of the product involved.

Many manufacturers of products containing toxic substances are aware of their responsibility to the community and have labelled the products accordingly. However, someone has pointed out that labelling is effective only for those who can read, and the child who succumbs to the temptation to take a toxic substance cannot yet read. Labelling is, therefore, effective when noted and acted upon by parents and adults. Furthermore, labelling is effective only if the substance is retained in its original container.

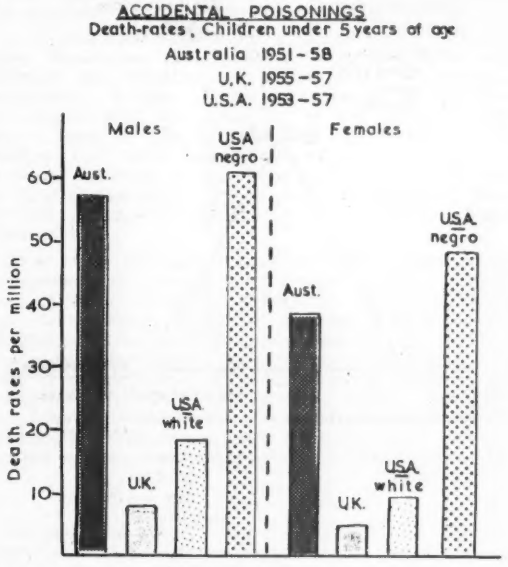

FIGURE II.

A comparison of death rates for acute accidental poisonin in children aged under five years: Australia, 1951-1958; U.K., 1955-1957; U.S.A., 1953-1957.

Host.

From the official statistics and hospital records, we know the age and sex distribution of the children who take poisonous substances. These figures tell us of the most dangerous ages, but they do not tell us why some children take these substances. Little is known about the personal characteristics of the children who take poisons. Craig (1955) matched 25 children who took poisons against 25 controls, and noted that "children who took poison had a strong oral drive, only 24% being normal compared with 72% of the controls". This observation is open to serious question, for the interpretation of oral drive depended upon the mother's description of the child's activities.

Allan and Williams (1956), as a result of their study on children admitted with acute poisoning to the Royal Children's Hospital, Melbourne, concluded that the majority of children who spontaneously took a poison had certain characteristics that made them appear different from the average child. This comment could be criticized on the ground that the collected facts about the children involved were compared with the observers' impressions of what constituted the average. They concluded that:

> As a group the children appeared to be intelligent, very active and mischievious; many had walked and climbed at an early age and had no fear of heights. Most were extremely curious and poked into cupboards and drawers, and liked to find out how things worked.

This description of children who take poisons would appear to be identical with descriptions to be found in books on child development describing the characteristics of children aged one to two years.

It is obvious that much more information is required about the type of children who take poisons and the circumstances surrounding the episode. We should know whether the situation is commonplace and the poison swallowing an unusual, unexpected event, triggered off by some extraneous event or circumstance. The following could be an example: a mother, having chastised a child, engenders in it a feeling of resentment which the child shows by an act of disobedience — drinking something prohibited.

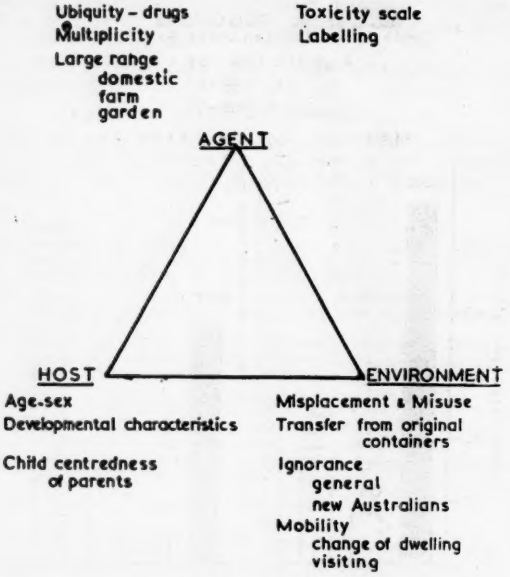

FIGURE III.

A schematic representation of the relationship of three factors (agent, host, environment) in the epidemiology of acute accidental poisoning.

Environment.

This term covers the circumstances under which the child takes the poison. Clinical histories of children admitted to hospital and reports of mothers interviewed during surveys revealed that children "discovered" poisonous substances in all manner of places, but that a large number found them easily accessible and many children did not have to search above ground level. Several overseas workers have made the point that a significant number of children have swallowed poisons which had been transferred from the original container to some domestic container; this defeated the effects of labelling and tempted the child, because the container was often one similar to that from which the child had been given a drink of some edible substance. It has been observed that for many children the environment has been so manipulated that poisoning seemed almost inevitable.

The population in Australia is too small to allow of an analysis on a regional basis of acute poisoning in children, and particularly of deaths due to poisoning; but it has been noted in the United States of America (Bain, 1954) that there is a differential death rate of poisoning in children aged under five years. Accidents due to caustics and detergents are six times greater in the southern States, with higher Negro and poor white populations, than in the northern States, whereas the poisoning rates for barbiturates and aspirin are similar.

There is widespread ignorance in the community about the toxic properties of many household, farm and garden commodities. In addition, recent arrivals in this country present a specific problem, since many are unacquainted with common household and other substances which contain poisons. This may also be important in respect of drugs and medicaments generally.

Mobility of families, of which there has been a great deal over the last decade, must constitute an additional hazard. People change dwellings, often moving from the confined space of a couple of rooms to a new cottage in the outer suburbs. In the old home restricted space often meant a tidy arrangement of household commodities or, because of the circumstances, few commodities. In the new cottage places have not been found for many of these, and they are temporarily deposited within easy reach of children. Furthermore, establishing a home in a new area often means the purchase of household and garden commodities, such as dangerous weed-killers and insecticides, with which the parents have not had a great deal of previous experience, and so they may be unaware of their toxicity.

Visiting relatives or friends, particularly the households which are normally occupied by adults, also constitutes a hazard to young children, and the record of surveys revealed that an appreciable number of children obtained poisons and swallowed them when visiting friends or relatives of the family.

It is clear that in the study of the epidemiology of acute poisoning we need to know a great deal more of the circumstances surrounding the actual ingestion of the poison; we need to know more about the child who takes poison, in respect of his personality, but probably more particularly of his actions and reactions that immediately preceded the episode.

Prevention of Acute Poisoning.

Prevention will be achieved by the introduction of changes in the agent, host and environment. Some of these have already been indicated; for the host and for some aspects of the environment we need a great deal more information. However, such information as we do have about toxicity and about the innate curiosity of the host in the most affected age groups indicates that a high level of protection must be exercised by parents and other adults. There is no disagreement about this among those interested in accident prevention; but there is lack of unanimity of opinion about how best to do it. In addition, there is the other component of prevention — namely, training of the child by a variety of techniques to be aware of accident hazards. This was presented at some length by Kerr Grant before this Association a couple of years ago (Kerr Grant, 1958).

It is clear that all those who are concerned with the guidance of parents have a responsibility to bring the facts before parents. There is some evidence that an organization concerned with the collection of information about poisons, which acts as a general information unit in the community, can do a great deal to stimulate interest in this subject. Dr. Grigor has already pointed to some of the advantages of a central poison information centre in the treatment of the child who has swallowed a poison; but from correspondence received from those operating centres in the United States and Canada, it is apparent that a poison information centre also acts as a constant focus of attention for the public on this matter, and this in the long run may be the more important role.

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ACCIDENTAL INGESTION OF POISON IN CHILDHOOD.[1]

By W. G. GRIGOR, M.R.A.C.P.,
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ONE of the penalties we pay for the many advantages conferred on us and our children by civilization is the vastly increased hazard of the accidental ingestion of substances actually or potentially poisonous. The average household contains a multitude of such substances, many of which were not present twenty to thirty years ago. The varieties are enormous and include petroleum products, sedatives, stimulants, tranquillizers, insecticides, rodenticides, herbicides, deodorants, depilatories and detergents (Arena, 1957). Few days must pass without the busy family doctor receiving a frantic call for advice on the actual or suspected ingestion by a child of any one of such substances, and the difficulties in assessment of a treatment and prognosis are considerable.

Recently I was fortunate in being able to discuss this subject personally with Professor Soedjono, Professor of Pædiatrics and Dean of the School of Medicine at the University of Indonesia. He indicated that in Indonesia accidental ingestion of potentially poisonous household substances and medicines was rare, and even kerosene and related petroleum products were infrequently ingested by children. In contrast, some 12,000 cases of actual or suspected ingestion of poison were reported to the National Clearinghouse for Poison Control Centres in the United States of America in the two years prior to 1958 (Cann *et alii*, 1958).

It is my intention tonight to present data about children admitted to the Royal Alexandra Hospital for Children with a diagnosis of actual or potential ingestion of suspected poisons during the period 1945 to 1958. Before proceeding to do so, I must emphasize the following points, to enable you to gain perspective on this information.

1. Any survey of accidental ingestion of poisons must be critically assessed, particularly from the point of view of the source of the information. In reading the histories of the children in the survey, it is obvious to me that the Royal Alexandra Hospital for Children provides mainly a local service, as most children are admitted from neighbouring suburbs. No doubt, district and base hospitals in New South Wales treat many similar cases, without any need for referral to a specialist hospital.

2. This is a purely retrospective study, and consequently suffers many disadvantages.

3. In 1945 approximately 9000 patients, and in 1958 approximately 11,000 patients, were admitted to the Royal Alexandra Hospital for Children. The increase in number of children admitted after ingestion of toxic substances must be considered with these figures in mind.

4. The incidence of accidental poisoning is highest in the second and third years of life, and falls quickly in the fourth year. This is true of the present study, and has been reported by other authors (Haggerty, 1959).

5. I have spoken personally to the parents of many children admitted to the Royal Alexandra Hospital for Children because of the accidental ingestion of toxic substances, and one point above all others has impressed me. Practically all these parents have told me how careful they are to protect the child from exposure to toxic substances; it would seem impossible for the child to ever get hold of such substances, and yet it has happened. This serves to emphasize how unreliable it is to accept uncritically the parents' words on this subject without an unbiased observer actually visiting the house.

6. In many instances the amount of the substance ingested, and in some instances the degree of certainty that any was ingested, are not known. Precise figures should therefore not be accepted, and I suggest that the numbers I quote be regarded as approximate.

7. As has been pointed out by many authors, including John Beveridge (1956), there is frequently a delay between the ingestion of poison and the seeking of treatment. I have gained no evidence in this survey to suggest that this time lag is any shorter than it was. Cann *et alii* (1958) found in a series of 3926 patients that there was a delay of more than one hour between ingestion of the substance and gastric lavage in 50% of the total. Times are not sufficiently precise in this retrospective study for me to make a definite statement.

8. A large number of authors have suggested that hypersensitivity plays a part in many deaths from ingestion of toxic substances. Certainly susceptibility may vary from person to person. Patients with a deficiency of glucose-6 phosphate dehydrogenase, an enzyme in the erythrocyte, may suffer excessive hæmolysis after ingestion of primaquine, fava beans, naphthalene and other substances, whereas normal persons without this enzyme deficiency are not susceptible to the actions of these substances. No doubt other examples, less well documented, of susceptibility to substances exist.

The Present Series.

Approximately 500 children suspected of accidental ingestion of poison were admitted to the Royal Alexandra Hospital for Children in the 14 years from 1944 until 1958. The type of substance ingested and the mortality rate are shown in Table I. Petroleum products and turpentine are the commonest group, closely followed by edible medicines.

TABLE I.
Five Hundred Admissions, from 1945 to 1958.

Substance.	Number of Cases.	Number of Deaths.[1]
Petroleum products (mainly kerosene)	130 (26%)	0
Turpentine	26 (5%)	0
Lead	74 (15%)	7
Edible medicines, commonest:		
Carbiturates	29	—
Sulphonamides	20	—
Belladonna alkaloids	19	—
Aspirin	14	—
Digitalis	9	1
Laxatives	7	1
Ferrous salts	4	2
Insecticides and herbicides	34 (5%)	1
Other:		
Phosphorus	—	1
Caustic soda	—	1
Eucresol	—	1
Strychnine and arsenic tablets	—	1

[1] Mortality rate: 3% (16 deaths) including plumbism; less than 2% (nine deaths) excluding plumbism.

The over-all mortality rate was approximately 3%, and if lead poisoning is excluded (as this involves repeated or "chronic" ingestion), the mortality rate becomes less than 2%.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on November 26, 1959.

Figure I demonstrates how admissions have increased in this 14-year period, an increase of approximately 300%, while total hospital admissions over this period have increased by less than 50%. Figure II serves to illustrate that the rising numbers are not due to an increase in the detection of lead poisoning. The increase in admissions for plumbism in 1957 is related to a survey of this disease which was being carried out at the time by Dr. Donald Kerr Grant in the Institute of Child Health, and is not a true figure. Figure III demonstrates that the ingestion of petroleum products has not dramatically increased in recent years. Figure IV shows the incidence of ingestion of edible medicines, and illustrates that the admissions have shown a definite and sustained increase over the years studied.

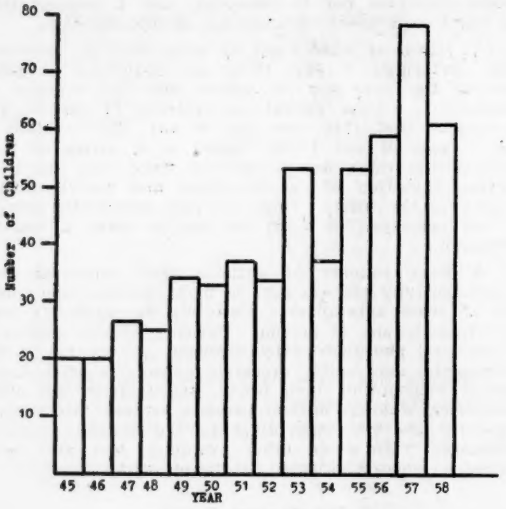

FIGURE I.

Graph showing the total numbers of children admitted to hospital because of accidental ingestion of poison between 1945 and 1958.

Petroleum Products.

As petroleum products are so frequently the toxic substances ingested, I studied the histories of those patients admitted in the last three years of the survey in greater detail; they may be briefly summarized as follows:

Total number admitted	50
Age:	
Under two years	40
Over three years	2
Gastric aspiration	14
Abnormal X-ray findings in chest	15
Other complications	0

The only complication was pneumonia, proven radiologically in 15 patients. This suggests to me that gastric lavage or induced emesis is ill advised for these patients. Dr. D. Kerr Grant has told me in a personal communication that Dr. William O. Robertson, of the Columbus (Ohio) Poison Control Centre, believes that the latest information gathered in this regard is that there is no significant difference if one encourages vomiting, aspirates the stomach or does nothing.

Aspirin.

Only 14 children are reported in this series suffering from salicylism, whereas this is the commonest form of accidental poisoning in the United States (Cann *et alii*, 1958). I am giving special mention to this substance, as all the children have been seriously ill on their admission to hospital although none has died. The numbers here are not sufficient to justify any conclusions; but I find that zealous medication by parents, and occasionally by a physician, accounts for more than a few of these admissions. In the United States, accidental ingestion is the commonest reason for this type of poisoning (Cann *et alii*, 1958).

Treatment of salicylism is difficult and requires precise biochemical control. Respiratory alkalosis due to direct stimulation of the respiratory centre is replaced at an unpredictable time by metabolic acidosis due to a disturbance of the citric-acid cycle. The indiscriminate giving of bicarbonate may jeopardize the patient's survival unless the pH of the serum is determined before hand, and recommendations that sodium bicarbonate be given after the ingestion of aspirin has been detected are, in my opinion, to be deplored. In very severe cases,

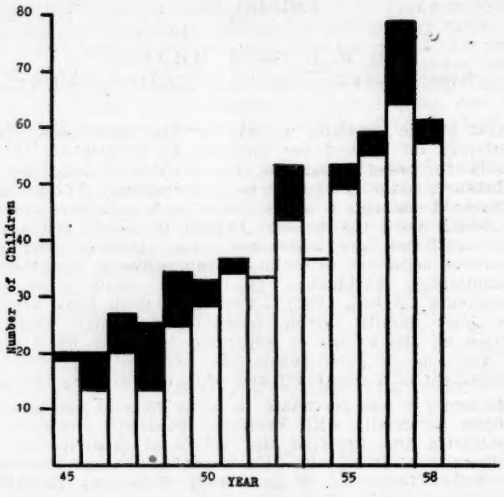

FIGURE II.

Graph showing the numbers of children admitted to hospital with lead poisoning (solid areas) in relationship to total number of admissions, 1945 to 1958.

replacement transfusion or extracorporeal dialysis for rapid removal of the drug may be advisable and should be considered.

Organic Phosphate Esters.

With the development of resistance to chlorinated hydrocarbons, organophosphorus anticholinesterase compounds are being used in insecticides (Haggerty, 1959). Only one child in this series has ingested such a substance, with paralysis of skeletal muscles; but one may anticipate further cases in the future if the examples set by the United States and Great Britain are followed. Accumulation of acetylcholine at the myo-neural junction leads to paralysis, and artificial respiration may be necessary to maintain life until the effects of these toxins have worn off. No antidote is yet available,[1] although research into a group of substances, the oximes (Cann *et alii*, 1958), may provide this in the future.

A General Approach to Actual or Potential Ingestion of a Toxic Substance.

The following four points are the logical steps to be taken: (i) identification of the toxic ingredients, and assessment of the degree of toxicity; (ii) removal of the substance; (iii) general treatment; (iv) specific treatment, if any.

The last three steps are self-explanatory, and a lengthy discussion at this stage is not appropriate. Perhaps the most controversial step is the removal of the substance. Arnold *et alii* (1959) carried out some experiments on the removal of salicylate from the dog's stomach, and I commend their conclusions to you:

[1] A specific antidote, P.A.M. (pyridine-2-aldoxime methiodide) is now available in Sydney.

1. Initial aspiration of the stomach before the introduction of fluid is equally as important as succeeding lavage.

2. Lavage within 15 minutes is no more effective than emesis induced within 30 minutes of ingestion.

3. Lavage one hour after ingestion is inefficient and far less effective than emesis produced within the same interval.

4. Spontaneous emesis is not as effective as induced emesis.

5. Emesis, immediate or delayed, as long as one and a half hours after ingestion, appears to be more effective and thus preferable.

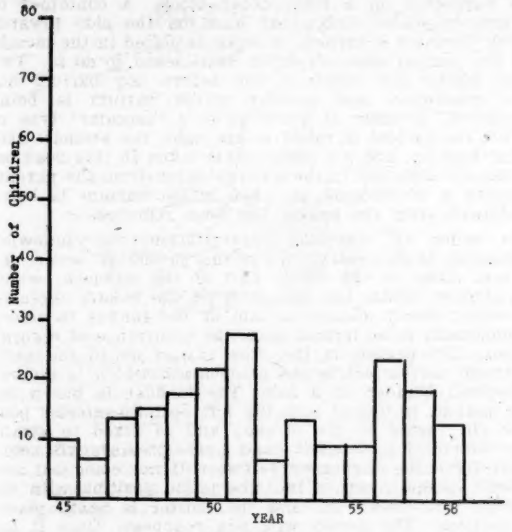

FIGURE III.

Graph showing the numbers of children admitted to hospital because of ingestion of petroleum products, 1945 to 1958.

6. Neither lavage nor emesis under the best possible conditions is consistently effective, so careful follow-up investigation after either treatment is necessary.

I advocate, in common with Dr. Robertson of the Boston Poison Information Centre (personal communication), the use of tincture of ipecacuanha to encourage vomiting after the accidental ingestion of toxic substances, except petroleum products and caustics. The information presented by Arnold and his co-workers is valuable evidence in this regard.

The logical first step in treatment is, of course, the identification of the substance or substances ingested, and assessment of the toxicity. Gosselin has formulated a toxicity rating, the value of this being to allow an immediate prediction of the prognosis, if the attending practitioner knows what, and how much has been ingested; this is frequently not known.

The identification of the substance is usually difficult and sometimes impossible in a reasonable time, so that immediate treatment becomes empirical and early prognosis impossible. In 1953 (Cann *et alii*, 1958), Chicago established the first Poison Information Centre, and there are now somewhere near 300 such centres in the United States of America. They are designed to give immediate advice to medical practitioners and lay persons on emergency treatment and on components and active ingredients of commercial products, and also to determine the incidence of accidental ingestion of poison.

In an attempt to assess whether it would be desirable to establish such a centre in Sydney, I have carefully investigated the medical history of the nine patients (excluding those with lead poisoning) who died in this series.

Five of these were most unlikely to have been saved by a poison information centre, mainly owing to delay in seeking advice of a medical practitioner. Conceivably, wide publicity assoicated with a centre may have overcome this obstacle. The other four patients I believe may well have been given an increased chance of survival had the advice of a centre been readily available.

Does the saving of four, or possibly nine, lives in fourteen years justify the expense and organization involved in the establishment of a poison information centre? I believe it does; but the advantages of a centre do not end with this prospect alone. Dr. R. J. Haggerty, Executive Secretary of the Boston Poison Information Centre, summarized these advantages very

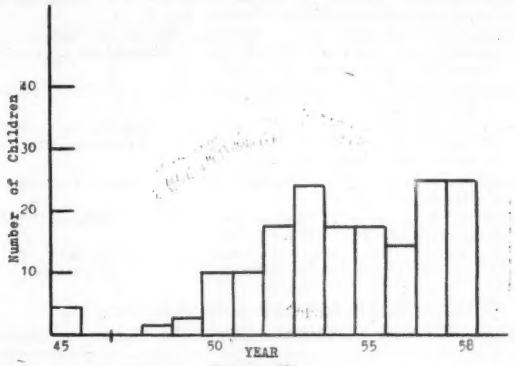

FIGURE IV.

Graph showing the numbers of children admitted to hospital because of accidental ingestion of edible medicinal substances, 1945 to 1958.

concisely in a personal communication to me. Briefly, the points he made are as follows:

1. Resident training is improved in the whole problem of poison ingestion and its prevention.

2. Benefit accrues from research from an epidemiological point of view.

3. Follow-up nursing visits to homes in American cities have revealed other health problems which might not have been otherwise detected.

4. Reassurance in many cases to parents and physicians is of considerable value.

5. Health education in general is improved as a result of the publicity associated with the activities of such a centre.

It is difficult to escape the conclusion that a poison information centre would be a valuable asset to this city. The cooperation of a children's hospital, pharmacologists, physicians and the State Government would help ensure the success of the venture. Perhaps, most important of all, the services of an enthusiastic director would be necessary.

Summary.

1. A retrospective survey of children admitted to the Royal Alexandra Hospital for Children with a diagnosis of actual or suspected accidental ingestion of potentially poisonous substances is presented.

2. Edible medicines and petroleum products were the commonest substances, kerosene being the commonest individual substance.

3. Lead poisoning has been excluded from this study as being a "chronic" poisoning. However, its importance is emphasized.

4. Children in the second and third years of life are at maximum risk.

5. The over-all mortality rate was found to be less than 2% when deaths from lead poisoning were excluded.

6. Some observations on kerosene, aspirin and phosphate ester poisons are made.

7. The establishment of a poison information centre in Sydney is considered, on the evidence presented, to be a worthwhile and necessary step.

Acknowledgements.

I am indebted to Miss J. Wilson, Medical Record Librarian at the Royal Alexandra Hospital for Children, for supplying many of the statistical data. I wish to record my gratitude to Professor Lorimer Dods for his encouragement and valuable advice.

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MUSCULAR EFFORT AND POSTURE IN HIATUS HERNIA.

By C. CRAIG, C.M.G., M.D., M.S., F.R.A.C.S., D.D.R.,

Launceston.

SOME years ago the writer adopted that method of searching for an hiatus hernia which consists of applying heavy passive pressure in the prone position. This method has, in his hands, been much more effective than any other. The application of this method has enabled two important observations to be made. Firstly, in a series of 800 consecutive patients examined, an hiatus hernia was shown to be present in 18%. There has, of course, been no control series; but nevertheless it is thought that this figure represents the incidence of hiatus hernia in the population. Needless to say, only a few of the hernias demonstrated were thought to be producing the symptoms complained of. The second observation was that in the vast majority of cases the hiatus hernia was readily reducible. In a series of 100 consecutive cases, 97 hernias were easily reducible—that is, only three were fixed in the sac. These three were large hernias. In this particular series all hernias were of the "sliding" variety. There is another observation that is worth recording—that ease of production of the hernia is directly related to its size. In this series, seven hernias were the size of a tennis ball or larger, and all these could be demonstrated by any of the methods in common use. The other 90 could be easily produced only by the method that is to be described. It should be pointed out at once that, although a large hernia is more likely to give rise to symptoms and is more prone to complications than a small one, this is not necessarily the case. Only recently, ulceration of the œsophagus was shown to accompany a hernia the size of a ping-pong ball, which could be produced by heavy passive pressure only.

It will be generally conceded that it is very desirable that the reducible hernia be kept out of its sac, whether it is giving rise to symptoms or not. On the figures given, there is a 10% chance that an hiatus hernia will become a large one and a 3% chance that it will become both large and irreducible.

The purpose of the present paper is to record a series of studies designed to reveal under what every-day and every-night circumstances a hernia may be forced into its sac.

Technique.

A cylindrical bolster measuring 6 or 7 in. in diameter and 6 in. in depth is used. It is covered with soft leather and filled with soft but "springy" material. The patient is turned into the prone position. The bolster is placed under the abdomen in such a way that its flat surfaces come against the table and against the patient. Care must be taken that it presses into the soft part of the abdomen and not onto the ribs or pelvis. Both hands are placed near the face, but the patient must not take his weight on his arms. The head is turned to one side and supported on a foam-rubber block. A container of barium is placed within the hand on the side towards which the head is turned. A straw is placed in the mouth, but the patient does not drink until asked to do so. Two basic photos are required, one before any barium has been swallowed and another whilst barium is being swallowed. If there is doubt as to a "saccular" type of hernia the patient is rolled to his right, the pressure still being kept up, and a photograph is taken in this position. If there is difficulty in the differentiation from the phrenic ampulla, a photograph is taken whilst barium is being swallowed after the bolster has been removed.

In order to test for regurgitation, the following manœuvre is necessary. When the patient is prone, the barium sinks to the distal part of the stomach, which is anterior. While the patient is on the bolster there is, therefore, rarely enough barium at the fundus to enable a judgement to be formed as to the occurrence of regurgitation. The patient is therefore turned on to the back. A broad canvas belt is put on, beneath which is secured a football bladder in a bag. The bladder is blown up. The patient is turned into the left occipito-anterior position (in regard to the screen) and is asked to strain. The combination of passive and active pressure will sometimes force the hernia out. If it will not come out, the patient is again turned into the prone position with the bladder still blown up, and the bolster is again placed in position. The hernia will now reappear. Once it has reappeared, it is hoped that the pressure of the blown-up bladder will keep it out until the patient is again turned on to the back so that regurgitation can be sought. This manœuvre is successful in the great majority of cases.

Muscular Activity and Posture During the Day Time.

The studies that are to be described were all carried out in cases in which the presence of a sliding reducible hiatus hernia had been demonstrated by the use of the bolster. In each case barium was swallowed just before fluoroscopic screening and radiographic examination in order to show up the site of possible herniation.

Muscular Activity in the Standing Position.

An example of the type of effort used is that in which the patient is asked to grasp the top of the table and try to pull himself up.

In no case could herniation be induced by muscular effort when the patient was in the standing position. However, it must be pointed out that what applies to one patient may not apply to another. If a certain patient, known to have a reducible hiatus hernia, complains of symptoms during muscular effort in the erect position, the best thing is to test that patient under the fluoroscopic screen.

The Sitting and Lounging Positions.

It is well known that there is a type of indigestion that occurs in people who sit for long periods in a "slumped up" lounging position. Motor-car drivers are particularly liable to it. In one such patient an hiatus hernia was discovered by the usual means. He was then sat behind the screen in a position that reproduced his position whilst driving a car. He was examined fluoroscopically at intervals. After he had sat for twenty minutes his

hiatus hernia appeared, and he then complained of his usual car symptoms. Since then he has trained himself always to sit erect, and has been much relieved. It would seem to be desirable for all patients with proven hiatus hernias to practise sitting in the upright position.

Defæcation.

If the patient sits with the upper part of the body flexed over the thighs, undoubtedly a good deal of passive pressure is exerted at the same time when patient is straining. However, two attempts that were made to reproduce large hernias in this position were not successful. Nevertheless, it is probably wise to advise patients to sit upright during defæcation.

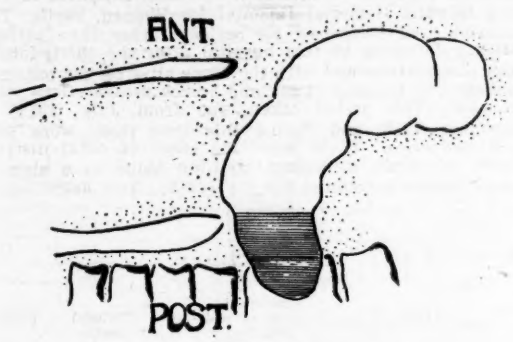

FIGURE I.
The patient is supine. The tube is directed horizontally. The barium is at the fundus.

Stooping as in Gardening, etc.

Bending fully forward as in the old exercise of "touching toes" is one of the well-known methods of producing an hiatus hernia. However, it is not a natural method of stooping, as generally speaking one knee is bent.

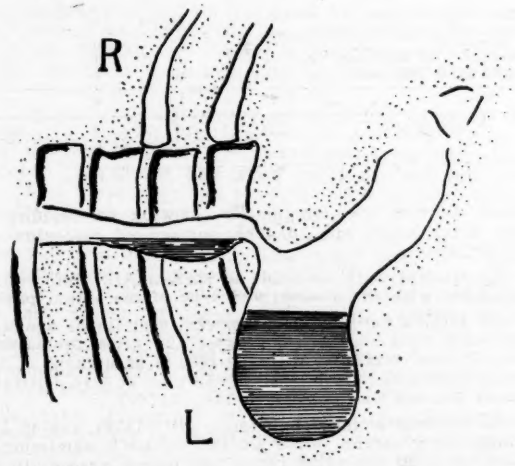

FIGURE II.
The patient is on the left side. The back is towards the tube, which is directed horizontally. The barium is well away from the hiatus.

When a knee is bent, the pressure produced is not so great. Digging is probably quite safe. The full squatting position, however, is an efficient one for producing a hernia, and is one that should be avoided. If it is thought to be particularly desirable that the hernia should not be produced, it is probably wise to advise the patient against gardening, as it is impossible to avoid the squatting position.

Scrubbing.

It has not been found possible to reproduce a hernia in the actual scrubbing position. In this position the trunk is prone, and gravity tends to pull the stomach away from the hiatus. Scrubbing is probably safe if the squatting position is avoided.

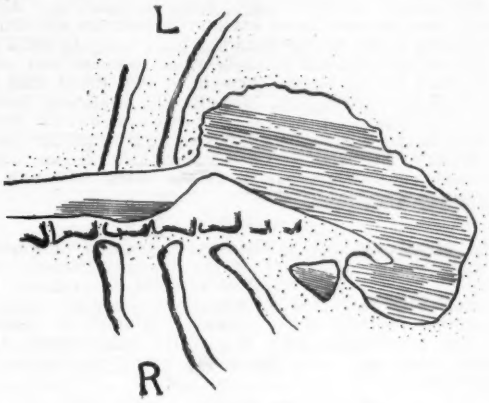

FIGURE III.
The patient is on the right side. The face is towards the tube, which is directed horizontally. The barium is over the hiatus.

The Wearing of a Belt or of Corsets.

The putting on of a tight belt is not effective in producing a hernia in the erect position. However, if the patient stoops the presence of a belt greatly exaggerates the effect of passive pressure. Tight belts or corsets are thus dangerous.

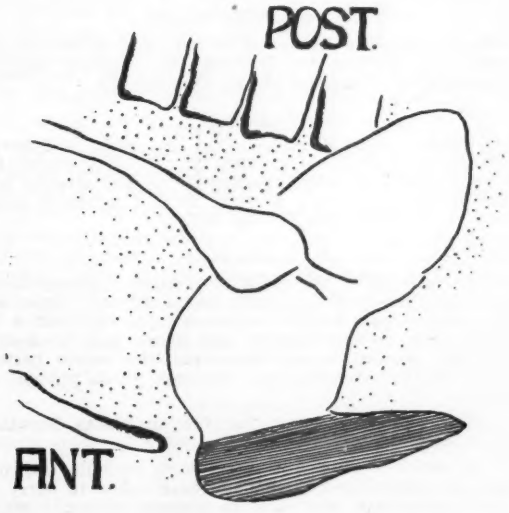

FIGURE IV.
The patient is prone. The tube is directed horizontally. The barium is at the pyloric end of the stomach.

Other Positions.

If there is doubt as to a particular position, it is very easy to test it out under the screen. Again, it is emphasized that a bolus of barium is necessary in all positions other than the supine.

Night Posture.

The rhythm of breathing changes during the night, and it is usually assumed that the sac is filled by the suction action of the long, deep inspirations. Again gravity must be used in an attempt to keep the sac empty. A series of X-ray photographs has been taken to show the position of the stomach in the various postures that could be assumed during sleep. These have been taken with the tube directed horizontally. Barium was swallowed during the examinations. A desirable position is one in which not only is the whole stomach drawn away from the hiatus by gravity, but the secretions are also drawn away. The main positions assumed during sleep will now be commented upon.

Supine.

The great drawback to the supine position (Figure I) is that the secretions are at the fundus. Patients who sleep on the back are often relieved by raising the pillows. The fact that a manœuvre produces relief is enough to recommend it. However, it must be pointed out that experience with the tilting table shows that barium does not leave the fundus until the patient is almost erect.

Lying on the Back and Turning onto the Left Side.

As the turn to the left is made, gravity becomes more effective in taking the stomach and its secretions away from the hiatus (Figure II). The full left lateral position is theoretically at least a good one.

Lying on the Back and Turning Towards the Right.

The effect of this manœuvre, if an irreducible hiatus hernia is present, is to empty the barium into that part which is in the sac (Figure III). This tendency continues until the full right lateral position is reached. Any such position must therefore be accepted as being an unsuitable one.

The Semi-Prone Positions.

Whether the inclination is to the right or to the left, gravity is effective in drawing the stomach and its contents away from the hiatus (Figure IV).

Comment.

It would seem, therefore, that the most satisfactory positions on theoretical grounds are the left lateral and the semi-prone or prone positions. As has already been said, the most suitable position is that which is found to be most comfortable by the patient.

Summary.

1. An analysis of 100 consecutive cases of hiatus hernia has shown that, if a patient has a hernia, there is a 10% chance that it will become a large one and a 3% chance that it will become both large and irreducible. For this reason, it is emphasized that such patients should avoid movements and postures which produce the hernia.

2. The method of searching for an hiatus hernia is described.

3. A series of observations made on patients known to have an hiatus hernia, who had been asked to carry out certain muscular efforts or to assume certain postures, is described.

4. X-ray photographs of the barium-filled stomach have been taken in various postures likely to be assumed during sleep, and comments are made on these postures.

Acknowledgement.

I am indebted to Mrs. G. F. Tresize for the drawings.

THE SIGNIFICANCE OF MECONIUM STAINING OF LIQUOR.

By BARRY G. WREN, M.B., B.S.,
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STAINING of liquor amnii with meconium is generally regarded as an indication of fœtal distress and therefore of intrauterine anoxia, and many articles have been written regarding its significance and importance.

In this article an attempt has been made to correlate the passage of meconium with the perinatal mortality rate and with the incidence of neonatal asphyxia in the King Edward Memorial Hospital for Women, Perth. The material used comprised all patients other than private patients delivered at this hospital after the thirty-fourth week of gestation, and with the fœtus alive on the patient's admission to hospital. Twin and breech presentations were excluded. The period taken was from July, 1955, to December, 1958, and during this time there were 5916 such deliveries. There were 194 cases of fœtal distress found; of these, meconium staining alone as a sign of fœtal distress accounted for 118 (60%). Our definition of fœtal distress was irregularity, slowing or rapidity of the fœtal heart rate, or the passage of meconium in liquor amnii.

TABLE I.
Fœtal Distress.

Type.	Number of Cases.	Stillbirths.	Neonatal Deaths.	Total.
Meconium staining ..	118	8 (6·7%)	8 (7·3%)	16 (13·5%)
Meconium staining and slow fœtal heart rate	26	1	2	3
Meconium staining and irregular fœtal heart rate	4	0	0	0
Meconium staining and rapid fœtal heart rate	6	0	0	0
Total	154	9 (5·8%)	10 (6·9%)	—
Slow fœtal heart rate ..	31	1	2	3
Slow and irregular fœtal heart rate	3	0	0	0
Irregular fœtal heart rate	5	0	1	1
Rapid fœtal heart rate ..	1	0	0	0
Total	40	1	3	4
Grand total ..	194	10 (5·1%)	13 (7·1%)	23 (11·9%)

No attempt could be made to correlate the information available with the amount and type of meconium passed.

All infants born before 34 weeks' gestational age were excluded from the series, because the gross prematurity would have interfered with the results as a cause of neonatal deaths and stillbirths. Of the total of 5916 deliveries, fœtal distress was present in 194 (3·25%).

In a recent article, Hellman *et alii* (1958), taking only single term infants alive on the mother's admission to hospital (and excluding twins and breech presentations), found 600 cases of fœtal distress in a series of 20,481 deliveries, an incidence of 2·9%. When it is considered that we had a larger proportion of premature deliveries, the two results are very similar.

In the 5916 deliveries in which the gestational age was 34 weeks or over, there were 64 stillbirths (1·1% approximately) and 43 neonatal deaths (0·73%). Thus the total perinatal loss was 107 (1·8%). When the cases in which there was meconium staining of liquor were excluded, there were 5762 deliveries; in this group there were 55

TABLE II.

Case Number.	Age. (Years.)	Parity.	Predisposing Cause.	Method of Delivery.	Complication.	Outcome.	Interval Between Meconium Staining and Death or Delivery.
1	22	0	Group B pelvis, uterine inertia.	Manual rotation, forceps.	Posterior position, delayed second stage, impacted shoulders.	Stillbirth.	12 hours.
2	16	0	Nil.	Vaginal.	64 hours first stage, deep transverse arrest, uterine infection.	Stillbirth.	6 hours.
3	35	4	Oblique lie, P.E.T.	Vaginal.	Surgical induction, uterine infection.	Stillbirth.	4 hours.
4	36	1	Uterine fibroid tumour.	Vaginal.	Delay first stage.	Neonatal death.	12 hours.
5	42	4	Nil.	Vaginal.	Exomphalos.	Neonatal death.	12 hours.
6	31	6	Nil.	Vaginal.	Atelectasis.	Neonatal death.	4½ hours.
7	31	0	Nil.	Forceps.	Delay second stage.	Stillbirth.	1 hour.
8	20	0	Contracted pelvis.	Forceps.	Six hours' delay second stage; intrauterine pneumonia.	Stillbirth.	2 hours.
9	32	0	Nil.	Forceps.	Cerebral hæmorrhage.	Neonatal death.	1 hour.
10	37	5	Nil.	Vaginal.	Atelectasis.	Neonatal death.	½ hour.
11	35	5	Transverse lie.	Internal version.	Prolapsed cord.	Neonatal death.	½ hour.
12	27	1	Nil.	Vaginal.	Cord around neck five times.	Neonatal death.	?
13	30	2	Four weeks post-mature.	Vaginal.	Nil.	Stillbirth.	?
14	37	9	Precipitate labour.	Vaginal.	Cerebral hæmorrhage.	Stillbirth.	?
15	33	2	Two weeks post-mature.	Vaginal.	Nil.	Stillbirth.	?
16	37	3	Nil.	Vaginal.	Nil.	Stillbirth.	?

stillbirths (0·9%) and 33 neonatal deaths (0·6%). The perinatal loss was thus 88 (1·5%).

It can be seen from the foregoing that fœtal distress is associated with a perinatal loss of 11·9%, whilst in normal cases the loss is only 1·8%.

In Hellman's series, the perinatal loss associated with fœtal distress was 7·7%. This significant increase in perinatal loss in both series gives a real indication of the danger the fœtus is encountering at the time when the fœtal distress is observed.

In Table I the significance of meconium staining of liquor as a sign of fœtal distress is well seen. Of the total number of cases, 79% were associated with the passage of meconium, and when meconium was seen, in only 36 of these cases was some variation in fœtal heart rate found.

In those cases in which meconium staining was found, as well as some variation in fœtal heart rate, there was not any higher percentage of perinatal loss than in cases of meconium staining by itself. On this point, our series does not appear to agree with popular opinion, and especially contrasts with Hellman's series, in which the perinatal loss was found to be as much as 20%, or approximately three times greater when meconium staining was associated with some variation in fœtal heart rate.

Altogether, it appears in this series that meconium staining is by far the most common indication of fœtal distress, and that the over-all perinatal mortality is just as high with meconium staining alone as when it is associated with other signs.

A combination of any of the signs does not lead to any increase in perinatal deaths.

Table II lists the cases of perinatal death associated with meconium staining alone.

As can be seen, there is only one factor which appears to bear any direct relationship—namely the time factor. In six cases the interval between the passage of meconium and either death or delivery was four hours or more. However, if forceps delivery or Cæsarean section had been performed earlier, then probably five more fœtuses would have been salvaged. One infant had gross exomphalos and would have died in any case.

Of the deaths, 59·2% occurred when a time-interval of one hour was allowed to elapse.

In one case, the membranes did not rupture till full dilatation had occurred and delivery followed almost immediately, and in four cases the fœtuses were found to be dead before the membranes had ruptured.

Neonatal Asphyxia.

If the passage of meconium is correlated with the degree of neonatal asphyxia which develops, then the importance of meconium staining of liquor as an indication of fœtal distress is again emphasized.

Our indication of neonatal asphyxia was assessment of the fœtus one minute after birth for the following points: (i) respiration; (ii) heart rate; (iii) colour; (iv) tone.

Although the Apgar grading was later introduced to give uniformity, the majority of our cases were not assessed by that method, and it depended on the observer to make the decision of mild, moderate or severe neonatal asphyxia.

It is, then, clearly seen that meconium staining is associated with a much higher percentage of neonatal asphyxia than its absence.

Summary.

1. An investigation is presented into the incidence of meconium staining of liquor in infants born after 34 weeks' gestation.

2. The perinatal loss associated with the passage of meconium (11·9%) is compared with that in infants not passing meconium (1·5%).

3. It was found that meconium staining by itself was associated with just as great a perinatal fœtal loss as any other sign of fœtal distress, alone or in combination.

This contrasts with Hellman's findings, for he found a combination of slow, irregular fœtal heart rate with meconium staining to be associated with a 20% perinatal loss, whilst we found an over-all perinatal loss of only 12%.

4. In an analysis of the causes of the perinatal loss associated with meconium staining, it is seen that excess delay in delivery is one of the major factors that can be corrected. If delivery is not anticipated per vaginam within four hours, then a Cæsarean section should be considered. If delivery is anticipated sooner, then no delay in the second stage should be allowed to occur.

5. In cases in which a long or difficult labour is anticipated, or if a patient has been in labour for some hours and the membranes are not ruptured, a rupture of the membranes should be performed to allow an earlier diagnosis of fœtal distress.

TABLE III.

Cases.	Neonatal Asphyxia.
Live births — 5707 (excluding meconium staining)	97 (1·7%)
Live births—144 (all fœtuses passed meconium)	102 (70·9%)

6. In a case in which the membranes are ruptured and the head is deeply engaged, if delay or difficulty is anticipated, a Drew-Smythe catheter passed behind the head will allow a small amount of liquor to be withdrawn and inspected, and fœtal distress can be again anticipated and treated if present.

7. As a great number of our infants who passed meconium showed neonatal asphyxia it would be wise to be extremely thorough with the resuscitation and post-partum care of the infant. Ideally, a pædiatrician should be available for resuscitation of these infants.

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Reports of Cases.

A DEATH FROM OVERDOSAGE OF "TOFRANIL".

By CHARLES H. NOACK, M.B., B.S.,
Observatory Clinic, Mental Hygiene Department, Victoria.

MRS. B. had in the last few years had a schizophrenic illness with marked depressive features. From April, 1959, she was treated with two "Tofranil" tablets, four times a day. By April, 1960, her "Tofranil" dosage had been reduced to two tablets three times a day, but this was the minimum which would maintain her without depressive or schizophrenic symptoms.

She went out one evening with her husband shortly before 8 p.m., leaving her son, aged two and a half years, in the care of her three daughters, the eldest being 13. The boy was left alone for—as far as is known—only a few minutes, and in that time he had eaten all but a few tablets from a container in which there were about a hundred tablets of "Tofranil". Before 8.10 p.m. his sister noticed that the container of "Tofranil" was empty and there were several tablets on the floor. By 8.10 p.m. the boy was having almost continual major convulsions. A neighbour who was a trained nurse was called, and found that the child was having continuous convulsions, that his pulse was full and bounding, and that he was pale and had dilated pupils.

The police and an ambulance were called. By about 8.20 p.m., when the police arrived, he was cyanosed, was having less frequent convulsions, and was so stiff that "he could not be bent enough to get him into the police car". Soon after, the ambulance arrived, and the boy was taken to the Alfred Hospital, where he was examined at 9.5 p.m. He was deeply comatose and not responding to painful stimuli, and was having convulsions at frequent intervals. He was given oxygen intranasally and his stomach was washed out.

After about five minutes, the boy stopped breathing; an intratracheal tube was inserted, and artificial respiration was commenced. Cardiac massage was performed immediately and persisted with for the next fifteen minutes. An intracardiac injection of adrenaline was given without response, and the boy was considered dead at 9.38 p.m.—that is, about 90 minutes after taking the "Tofranil".

Post-mortem examination showed no macroscopic abnormality. Chemical analysis showed 27 parts per million of "Tofranil" in the liver—that is, about 11 mg.—and 320 mg. of "Tofranil" in the stomach.

The total amount of "Tofranil" swallowed is believed to have been about 2500 mg. In view of the circumstances described, it appears likely that most of this either was washed out of the stomach or was in the gut below the stomach. There was only a small concentration of "Tofranil" in the liver, and the level in the brain is not known. The mode of death appears to have been intense status epilepticus with consequent cerebro-vascular exhaustion.

The father of the boy was quick to stress the important point that the tablets were a pretty pink and sugar-coated. He felt sure that but for these characteristics the child would not have taken more than a few of them, and that therefore drugs dangerous to children should be made distasteful and unattractive.

Reviews.

Released Mental Patients on Tranquillizing Drugs and the Public Health Nurse. By Ida Gelber, Ed.D., R.N.; 1958. New York: New York University Press. 8¼" x 5", pp. 152. Price: $3.00.

As one of the recipients of a Nursing Fellowship award, Dr. Gelber was able to carry out full-time research and write this book, which is "No. 1 Nursing Research Monograph from the Department of Nurse Education, New York University". In the foreword it is pointed out that in the U.S.A. an increasing number of nurses are undertaking doctoral study and preparation for research in nursing. Dr. Gelber introduces the subject by stating that mental illness is the major health problem of today in the U.S.A. The expenditure for the public mental hospitals is three million dollars daily and the estimated loss in earnings of these patients is four billion dollars per year.

Evidence is given that more patients are leaving the mental hospitals and after a shorter stay since the introduction of tranquillizing drugs in the last few years. It appears that such patients are, in general, more accessible to various forms of therapy and help because of these drugs and in greater need of follow-up assistance. Dr. Gelber defines the problem and the terms used. Her objective was to classify the needs of released mental patients receiving tranquillizing drugs, and to determine whether public health nursing could play a significant role in meeting these needs. Related literature is discussed.

Her survey method was chiefly as follows: (i) A comprehensive *questionnaire* was completed by the mental hospital authorities responsible for the administration of State mental hospitals in 18 States. (ii) The records of 100 patients attending the Brookly Aftercare Clinic were studied.

This information is classified, correlated and interpreted (there are 46 tables in the book). Attention is focused on no less than 48 needs.

Dr. Gelber then lists 44 recognized functions of the public health nurse, discusses these and correlates them with the needs of the released mental patient. She concludes the chapter as follows: "The high degree to which the needs of released mental hospital patients on tranquillizing drugs are related to public health nursing functions indicates a major role for public health nursing in follow-up programmes."

Dr. Gelber has focused attention forcibly on the needs of psychiatric patients and their families in their homes and at the community level, with many side implications of the possibilities for "preventive psychiatry". She has indicated that in the U.S.A. there is a vast potential of professional help available in the 10,000 public health nurses, who are in a unique position to provide this service because of their training and their already established position and close personal relationships with the families and communities concerned. The book is unusually readable for a "research monograph", and should be of interest to administrators in mental health, to social workers and to all those interested in community health and welfare.

The Anti-Globulin (Coombs) Test: In Laboratory Practice. By I. Dunsford, Ph.D., M.I.Biol., and Jean Grant, F.R.C.P.; 1959. Edinburgh and London: Oliver and Boyd, Publishers. Adelaide: Rigby Limited. 9¼" x 5¼", pp. 132, with illustrations. Price: 21s. 9d.

THE antiglobulin reaction, or Coombs test, has been in use for the past fifteen years, and during that time has helped to develop knowledge in the fields of blood-group serology, blood transfusion and hæmolytic anæmias. The present authors have had considerable experience in the use of antiglobulin (Coombs) serum in these fields of medicine, and they have managed to translate their experience into this well-written, compact and essentially practical book. The first chapter contains a useful definition of terms, and the second describes the serological basis of the Coombs test, with the aid of two diagrams. Methods for the preparation and processing of antiglobulin serum are described in detail, and it is recommended that batches of antiglobulin serum should be standardized for each type of antibody which it will be required to detect. A suitable technique for standardization is described.

The performance of both direct and indirect Coombs tests is described in full, with details of optimum red-cell concentration, technique of cell washing and method of rotating cells on the tile. Mention is made of the problem of incomplete cold antibodies, which may become attached to red cells stored in the cold and give a false positive reaction with antiglobulin serum.

There is a very useful discussion on the place of the indirect antiglobulin test in blood transfusion work. The authors consider it to be the most reliable single compatibility test available; yet they give the caution that "the antiglobulin test remains largely an experimental technique which is fraught with difficulty".

The book concludes with a short discussion, together with 56 references on the application of the antiglobulin test in hæmatology, bacteriology, forensic medicine and immunological research.

All laboratory personnel who work with antiglobulin serum should read this book. It will prove helpful also to those wishing to understand the principles of the test and to those responsible for the interpretation of results.

Pain: Problems Pertaining to the Transmission of Nerve Impulses which Give Rise to Pain;; Preliminary Statement. By W. Noordenbos; 1959. Amsterdam, London, New York and Princeton: Elsevier Publishing Company. London: D. van Nostrand Company, Limited. 8¾" x 5½", pp. 192, with 39 illustrations. Price: 42s. 6d. (English).

THE neurosurgeon has a very special interest in the problem of pain, because he is frequently called upon to treat pain surgically. While great progress has been made in this field, there are still notable exceptions, such as conditions like post-herpetic neuralgia, "atypical" facial neuralgia, phantom-limb pain, tabetic crisis and causalgia. The author of this thoughtful and thought-provoking book is a neurosurgeon who has sought to find common features in patients complaining of pain, particularly those referred to the neurosurgeon for possible relief. Many of these conditions seem to have little in common and to be of widely different pathology, their only common feature being that the pain is tenacious in quality and refractory to treatment. The author brings to his task not only an extensive clinical experience, but also a wide knowledge of the relevant neurophysiological and neurohistological literature. In fact, the principal aim of the book is the attempt to see how far present histological and physiological knowledge can go in providing a basis for understanding these difficult clinical problems. As the subtitle indicates, the author specifically restricts himself to one aspect of the problem—namely, the transmission, in the peripheral nervous system, spinal cord and brain-stem, of impulses giving rise to pain. The cerebral integration of these impulses and the patients' reaction to them are not considered. The author is, however, well aware of the complexity of the task he has set himself. It was partly the problem posed by semantics that prompted him to write in English rather than his native Dutch. In addition, he devotes chapters to such matters as "Description of Sensation", "Terminology" and "Measurement".

The author is strongly in favour of the viewpoint, championed by Weddel and the Oxford group, that afferent conduction is not along specific fibres, but that each stimulus sets up complicated patterns of impulses travelling along fibres of many different types, which may vary in diameter and therefore rate of conduction. These patterns must constitute the basis for sensation. Though it is admittedly an over-simplification, the author develops the idea of two contrasting fibre systems in terms of speed of conduction—"fast direct" versus "slow indirect"—and he attempts to find out how far clinical findings can be explained along such lines. Although we do not necessarily agree with the author's main thesis, this book can be read with profit by anyone, clinician and laboratory worker alike, who is concerned with the conduction of afferent impulses and the basis of sensation, particularly painful sensation. The book itself is well printed and attractively produced.

Care of the Surgical Patient. By Jacob A. Glassman, M.D., F.A.C.S., F.I.C.S., and Raymond W. McNealy, M.D., F.A.C.S., F.I.C.S.; 1959. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson Limited. 9" x 6", pp. 328. Price: 71s. 6d.

WHILST there are many outstanding textbooks on surgery and numerous excellent volumes on operative technique, it is often difficult to obtain a book which gives detailed and specific instructions on the practical problems of managing a surgical patient. The present book covers this field, systematically describing the pre-operative and post-operative management relating to the surgical procedures of each region. The pre-operative care is analysed under the headings of "Work-Up", "Management" and "Medication". Post-operative procedure is considered under the titles of "Management", "Medication' and "Follow-Up". In addition to this, there are sections dealing with burns, fractures, tetanus, anæsthetics and cardiac arrest.

However, this book is more than a practical guide for the management of surgical patients; it is also a handbook on basic medical sciences. There are chapters on fluid and electrolyte therapy, acidosis and alkalosis, hospital infections, antibiotics, thrombosis and embolism, and shock. The advice given is practical, authentic and up to date. The section on antibiotics covers the use of 19 different antibiotics and includes several of very recent development.

The book is well printed and set out. The style is direct and forceful, with instructions tabulated in lists rather than in essay form. There is space for notes after every section.

This is an excellent book, which fills a gap in medical literature. The practical management of patients must still be learnt in the hard school of experience; but this book will be an invaluable guide on the subject. It will be of particular value to students, surgical residents and nurses, but it contains much of interest to all surgeons.

Maudsley Personality Inventory (Test Set). By Professor H. J. Eysenck; 1959. Melbourne: Hodder & Stoughton, Ltd. Prices: Test 8d. per copy, 6s. 6d. per dozen; Key E Scale, Key N Scale, 1s. 11d. each; Manual, 4s. 9d.

THE Maudsley Personality Inventory has been designed to measure neuroticism, which is defined by the author, Professor H. J. Eysenck, as the general emotional lability of a person with a liability to neurotic reactions to stress, and extraversion—"the out-going uninhibited social proclivities". The inventory comprises 48 questions, to each of which the subject should mark "Yes", "?" or "No" according to his first reaction, without lengthy deliberation. A short *questionnaire* of six items has been included for use under special circumstances. Scoring is carried out by laying transparent scoring keys over the marked inventory, one for neuroticism and the other for extraversion. The inventory, the result of many years of research on the facets and

dimensions of personality, appears to correlate satisfactorily with various other neuroticism and extraversion scales.

Anxiety subjects, obsessionals and depressives, while scoring high on neuroticism, score low on extraversion. Dysthymics, psychosomatics and psychopaths score high on neuroticism, hysterics and recidivists somewhat lower. Psychopaths are extraverted, hysterics and recidivists closer to a normal balance between extraversion and introversion.

In addition to its applications in clinical psychiatry, where it may both be a diagnostic help and point to lines for further inquiry, the Maudsley Inventory may be of help in educational problems, since neuroticism and extraversion both have a bearing on scholastic progress. In market research the inventory may throw light on the motivation behind choice by buyers. In the selection of candidates for special positions the inventory may be a useful guide.

Surgical Treatment of Bone and Joint Tuberculosis. By Robert Road, M.A., M.Ch.Orth., F.R.C.S.Ed., F.R.C.S.Eng., W. H. Kirkaldy-Willis, M.A., M.D., B.Chir., F.R.C.S.Ed., and A. J. M. Cathro, M.B., Ch.B., with a foreword by Harold Boyd, M.D., F.A.C.S. Illustrations by W. Cannell, M.C.S.P.; 1959. Edinburgh and London: E. & S. Livingstone, Limited. 9¾" × 6¾", pp. 150, with 90 illustrations and 10 tables. Price: £1 10s. (English).

THIS is a comparatively small volume of 137 pages. As the title implies, it is primarily concerned with surgical treatment, but brief attention is given to other aspects of bone and joint tuberculosis. The book begins with short chapters on general principles and diagnosis, and the subject is then presented in a regional fashion, with emphasis upon the place of surgery. Finally, there is an analysis of results in the authors' series of 756 cases of joint tuberculosis. The general production of the book is excellent. In particular, the illustrations are numerous and clear and well related to the text.

The collection in one volume of the operative techniques is very valuable. However, it needs to be emphasized that the approach to the subject is based on personal experience, and a comprehensive review is not intended. This permits the authors to present their own recommendations in reasonable space, but alternative methods are usually not mentioned. Thus there are described only two methods of arthrodesis of the hip, though these are presented in full detail.

In this field, great changes in prognosis and treatment have followed the introduction of antibiotics and the general recognition of the value of surgical *débridement*. At the same time, public health measures have so greatly reduced the incidence of tuberculosis in well-advanced communities that the opportunity to assess these therapeutic improvements is available only in the more primitive countries. For these reasons, the information in this book is a welcome contribution.

Antibiotic and Sulphonamide Treatment: A Short Guide for Practitioners. By A. R. Anscombe, M.S., F.R.C.S., D. B. Brown, M.B., M.M.S.A., M.R.C.O.G., D. M. Davies, M.R.C.P.; edited by M. E. Florey, M.D., with a foreword by the Rt. Hon. The Lord Evans, G.C.V.O., M.D., F.R.C.P.; 1959. London, New York, Toronto and Melbourne: Oxford University Press. 6½" × 4", pp. 160. Price: 17s. 6d.

THIS small book provides in compact form an account of the salient features of most of the antibiotics and sulphonamides in use today—the forms in which they are available, the correct method of storage, dosage and routes of administration, side effects following their use, organisms susceptible to their action, and the clinical conditions in which they should be employed.

A practical outlook is maintained with a good guide to the therapy of common infections, the methods that have stood the test of time being stressed. Lady Florey, who is the editor, and her co-authors have stressed the English outlook to treatment, and all clinicians of experience would not agree with some of the advice in such a controversial subject as the selection of a chemotherapeutic agent. For example, most doctors would prefer to use penicillin in the treatment of pneumococcal pneumonia, and not first to try a sulphonamide. Similarly, in the treatment of meningococcal and pneumococcal meningitis, penicillin is the best drug. There is little discussion on the different forms of treatment of meningitis, and it is not emphasized that many patients with acute purulent meningitis can be adequately treated without intrathecal therapy.

Fortunately, the undesirable effects of these chemotherapeutic drugs are stressed, and no encouragement is given for their use in minor illnesses. Synergism and combined therapy are discussed, but not unduly emphasized.

Mention is made of the problem of resistant strains of staphylococci; but it could be more strongly pointed out that staphylococcal infections occurring outside hospital could well be due to an organism that is penicillin resistant. Although there is still a place for penicillin in the treatment of some staphylococcal infections, it should not be the only drug used first in a serious infection.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Gastric Cytology: Principles, Methods and Results", by Rudolph Otto Karl Schade, M.D. (Dunelm), M.D. (Tubingen), L.R.C.P., M.R.C.S.; 1960. London: Edward Arnold Ltd. 9¾" × 7¼", pp. 92 with 85 illustrations. Price: 59s. 3d. (Australian).

"Fluid Balance in Obstetrics: A Critical Review", by Philip Rhodes, M.A., M.B., F.R.C.S. (Eng.), M.R.C.O.G.; 1960. London: Lloyd-Luke (Medical Books) Ltd. 8½" × 5½", pp 180. Price: 25s. (English).

"A Synopsis of Fevers and their Treatment", revised by James H. Lawson, M.D. (Glas.), D.P.H.; Tenth Edition; 1960. London: Lloyd-Luke (Medical Books) Ltd. 7½" × 4¾", pp. 192. Price: 10s. (English).

"The Cost of Medical Care", International Labour Office, Studies and Reports, New Series No. 51; 1959. Geneva: International Labour Office. 9½" × 6", pp. 232. Price: 12s. 6d.

"Cosmetic Surgery: Principles and Practice", by Samuel Fomon, M.D.; 1960. Philadelphia and Montreal: J. B. Lippincott Company. 10" × 6¼", pp. 672, with 608 illustrations. Price: £15 2s. 6d.

"Handbook of Neurological Diagnostic Methods", edited by Fletcher McDowell, M.D., and Harold G. Wolff, M.D.; 1960. Baltimore: The Williams & Wilkins Company. 9" × 5¼", pp. 210. Price: 49s. 6d.

"Oxidation-Reduction Potentials of Organic Systems", by W. Mansfield Clark, Ph.D., Sc.D.; 1960. Baltimore: The Williams & Wilkins Company. 9" × 6", pp. 600. Price: £7 8s. 6d.

"Diseases of the Skin", by James Marshall, M.D. (Lond.); 1960. Edinburgh and London: E. & S. Livingstone Ltd. 8½" × 5½", pp. 952, with many illustrations. Price: 84s. net (English).

"Essays on the First Hundred Years of Anæsthesia", by W. Stanley Sykes, M.B.E., B.Chir. (Cantab.), D.A.; Volume I; 1960. Edinburgh: E. & S. Livngstone Ltd. 8½" × 6", pp. 174 with many illustrations. Price: 30s. net (English).

"The Principles and Practice of Chiropody", by John H. Hanby, F.Ch.S., and H. E. Walker, F.Ch.S., with a foreword by Norman C. Lake, M.D., M.S., D.Sc., F.R.C.S.; Second Edition; 1960. London: Baillière, Tindall and Cox. 8½" × 5½", pp. 448 with 151 illustrations. Price: 30s. (English).

"The Handling of Chromosomes", by C. D. Darlington, F.R.S., and L. F. La Cour; Third Edition; 1960. London: George Allen & Unwin Ltd. 7½" × 4¾", pp. 250 with many illustrations. Price: 30s. net (English).

"Radiology as a Diagnostic Aid in Clinical Surgery", by Howard Middlemiss, M.D., F.F.R., D.M.R.D.; 1960. London: William Heinemann Medical Books Ltd. 9¾" × 5¾", pp. 160 with 86 illustrations. Price: 30s. net (English).

"Treatise on Parapsychology: Essay on the Scientific Interpretation of the Human Phenomena Known as 'Supernatural'", by René Sudre, translated by C. E. Green; 1960. London: George Allen & Unwin Ltd. 8½" × 5½", pp. 416. Price: 35s. net (English).

"Heart Attack: New Hope, New Knowledge, New Life for Those Who Have Suffered a Coronary Thrombosis and for Those Who Have Not but Wish to Avoid It", by Myron Prinzmetal, M.D., and William Winter, Patient, with a Preface by Walter C. Alvarez, M.D.; 1960. New York: Simon and Schuster. 8" × 5½", pp. 256. Price: $3.50.

"Principles and Methods of Clinical Chemistry for Medical Technologists", by Eugene W. Rice, Ph.D.; 1960. Illinois, U.S.A.: Charles C. Thomas, and Oxford: Blackwell Scientific Publications Ltd. 9" × 6", pp. 304. Price: 56s. (English).

"Bone as a Tissue", edited by Kaare Rodahl, M.D., Jesse T. Nicholson, M.D., and Ernest M. Brown, Jr., M.D.; 1960. New York, Toronto and London: McGraw-Hill Book Company, Inc. 9" × 5¾", pp. 368 with many illustrations. Price: Not stated.

"Bamboo Doctor", by Stanley S. Pavillard; 1960. London: Macmillan & Co. Ltd. New York: St. Martin's Press. 8½" × 5½", pp, 218 with 7 plates and 2 maps. Price: 22s. 6d. (Australian).

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THE STAPHYLOCOCCUS IN GENERAL PRACTICE IN AUSTRALIA.

Two things in particular are notable about the report recently issued by the National Health and Medical Research Council on staphylococcal infections in general practice in Australia.[1] The first is that it provides valuable information about the habits of *Staphylococcus aureus* in this country. The second is that it is an excellent example of the role of the general practitioner in clinical research. The combination is apt and useful.

The report covers a project which extended from May to December, 1958, with two main objectives: the first was to study the epidemiology of staphylococcal infection occurring in general practice in representative areas throughout Australia; the second was to determine the current sensitivity patterns of the various strains to the antibiotics in common use. Nineteen localities were involved in widely different parts of Australia with an assortment of climatic conditions—sub-equatorial, tropical, sub-tropical and temperate. The survey covered unselected staphylococcal infections of the skin and subcutaneous tissues in 2164 patients. Nasal swabs were taken from all patients, and strains of *Staphylococcus aureus* isolated from patients were phage-typed and their antibiotic sensitivities determined. The most common lesion was the furuncle, which occurred in 32% of patients, and the next was the staphylococcal abscess, which occurred in 11·9% of patients. The most frequently affected areas were the hand, arm, groin, perineum, neck and chest in males and the axillæ and breasts in females. The incidence of infection declined steadily with increasing age, except for the age group 30-39 years, which had the highest incidence of all age groups. In those under five years of age, furuncles, carbuncles, infected lacerations and pulp space infections were relatively uncommon.

[1] "A Survey of Staphylococcal Infections of the Skin and Subcutaneous Tissues in General Practice in Australia, May-December, 1958", by A. Johnson, Phyllis M. Rountree, Katherine Smith, N. F. Stanley and K. Anderson; N.H.M.R.C. Special Report Series No. 10; 1960. Canberra: National Health and Medical Research Council. 9½" × 6", pp. 52.

The sensitivity reactions of the organisms were interesting: 64% of all strains from lesions were resistant to penicillin, 1·4% to streptomycin, 0·8% to erythromycin, 0·5% to chloramphenicol and 2·3% to tetracycline. In only one in every five cases in infants was the infecting strain sensitive to penicillin. Fortunately only 48 strains of a total of 1657 tested were resistant to more than one antibiotic, and only one strain was resistant to all five antibiotics. Study of the phage-group distributions from lesions showed that 46·6% of all strains were of or closely related to type 80/1 (the group first identified in Australia in 1953 and since widely implicated in staphylococcal infections, especially in maternity and general hospitals), and that there were no significant differences in the phage group distributions in the various localities. Moreover, 90·6% of all type 80/1 strains were resistant to penicillin, as were 69% of strains belonging to phage group III. Type 80/1 strains were isolated from 58% of all lesions regarded as pathognonomonic of staphylococcal infection, such as furuncles, carbuncles and styes, but from only 27% of cases of paronychia, impetigo, pustules and infected lacerations. The nasal carrier rates, it is interesting to note, were low; only 34·9% of patients were carriers. Because of the association of type 80/1 strains with hospital infections, the hospital contacts of patients were investigated, but many patients infected with these strains had no history of recent hospital contact.

In discussing the findings, the authors of the report draw attention to four points of particular interest. The first is the high incidence of resistance to penicillin found in strains of organisms from both lesions and nasal swabs. It is pointed out that this high incidence is partly due to the large number of type 80 staphylococci isolated, but penicillin-resistant strains were also found in all the phage groups. Since 64% of the staphylococci were resistant to penicillin, it can be concluded that therapeutic efficacy of penicillin can no longer be assumed in staphylococcal infections — a phenomenon of relatively recent origin and one that is no longer true exclusively of hospitals. The report draws the important conclusion at this point that, in the absence of information on the resistance of the infecting strains, penicillin should not be used in the treatment of staphylococcal infections. This is regarded as particularly important in the case of infants and emphasizes the influence of antibiotic sensitivity tests in individual cases. The second interesting point is the low incidence of strains resistant to other antibiotics. Where the need for an antibiotic is indicated, there should rarely be difficulty in finding one that is effective. The third point to which attention is drawn is the high incidence of type 80 and related strains. This was apparent in all localities and in all age groups, and appeared to have become a phenomenon of the general community rather than just the result of infection acquired in hospital. The fourth point of interest is the relatively low incidence of nasal carriage. The inference drawn is that much of the infection must therefore be transmitted directly from person to person or via fomites. In recurrent cases, skin carriage may be more important than nasal carriage in perpetuating lesions, or the patient may be reinfected from a contaminated environment. This is important, the report points out, in the consideration of methods of eradication of infection, particularly in families with more than one person affected.

An important over-all observation from this report is that a position that has been emerging for some time in various parts of Australia is in fact Australia-wide. It will be remembered that in 1956 Phyllis M. Rountree and Judith Rheuben[2] reported that 101 of 200 blood donors examined in Sydney in December, 1955, were nasal carriers of *Staphylococcus aureus*, and that 26 of these were carrying penicillin-resistant strains. This was double the number found less than two years previously. Of 85 strains isolated from furuncular lesions, styes and carbuncles occurring in private patients, 53·5% were resistant to penicillin. Last year G. R. Sippe[3] reported that one-quarter of all strains of coagulase-positive staphylococci isolated in a country town in New South Wales were resistant to tetracyclines. Resistance to streptomycin, chloramphenicol and erythromycin was found to be unusual. The report of the survey carried out by the research committee of the New South Wales Faculty of the Australian College of General Practitioners published later in the year[4] indicated that there was a very high incidence of penicillin-resistant staphylococci in general practice—patients in New South Wales. The present report indicates that this is the over-all Australian picture. There are therefore many good reasons why penicillin should not be given to patients with lesions that are or may be assumed to be due to *Staphylococcus aureus* unless there are positive indications for its use. If antibiotics are really needed, and in a large proportion of staphylococcal lesions they are not, the suitability of penicillin should be considered first, but there should be other effective antibiotics to take its place if necessary.

The authors of this report are Dr. Alex Johnson, Senior Medical Officer, Commonwealth Department of Health, and also Honorary Secretary of the Committee in Preventive Medicine of the Australian College of General Practitioners, and four bacteriologists: Dr. Phyllis M. Rountree, of the Fairfax Institute of Pathology, Royal Prince Alfred Hospital, Sydney, Miss Katherine Smith, of the Commonwealth Serum Laboratories, Professor N. F. Stanley, of the University of Western Australia, and Dr. Kevin Anderson, of the Institute of Medical and Veterinary Science, Adelaide. These were the key people in the work, but, as was remarked earlier, the survey is notable for the participation in it of a large group of general practitioners representing 44 practices in 19 localities. The report states that more than half of them are members of the Australian College of General Practitioners and that their support was indicative not only of the interest of all doctors in the problems of staphylococcal infections, but also of the College's interest in general practitioner research projects. The authors of the report acknowledge that without the support of the general practitioners the survey could not have been carried out, and it is certain that only by bringing in people practising in places as far apart as Cairns, Hobart, Perth and Darwin, with many in between, could a picture be drawn so representative of Australia. The report contains valuable findings with important technical implications. It is to be hoped that more such use will be made of the wealth of material awaiting exploitation in Australian general practice.

[2] MED. J. AUST., 1956, 1: 399 (March 10).
[3] MED. J. AUST., 1959, 1: 666 (May 16).
[4] MED. J. AUST., 1959, 2: 355 (September 12).

Current Comment.

A MEDIEVAL SURGEON.

IT is not often that the writings of a medieval surgeon are made available in a modern language, and when this occurs it is a matter for congratulation amongst surgeons and historians alike. Between 1160 and 1320 three notable surgeons devoted their practice to the surgery of trauma, and each was the pupil of his predecessor. These were Hugo de Lucca (*c.* 1160-1257), Theodoric (1205-1298) and Henri de Mondeville (1260-1320). The teachings and practice of Hugo were carefully recorded by Theodoric, a Dominican, who became Bishop of Cervia and whose works have now been made available in an English translation by Eldridge Campbell and James Colton. Theodoric's *Chirurgia* exists in a number of manuscripts of various dates in several languages and varying degrees of completeness; it was later to be printed in 1498, 1499, 1513, 1519 and 1546.

Campbell and Colton have translated the version printed in Venice in 1498 but unfortunately have not collated this text with the manuscript versions. The translation has appeared in two volumes; the first, covering Books I and II, appeared in 1955, the second, dealing with Books III and IV, has just been published.[1] It is a matter for regret that the senior author, Dr. Eldridge Campbell, died during the preparation of the second volume.

Theodoric was a Bolognese and reputed to be the son of Hugo de Lucca, whose work is referred to so often in Theodoric's text. It is obvious from the text that Theodoric was a well trained surgeon who insisted on the value of personal experience and had little patience with thoughts and beliefs not based on practice.

In Books I and II, which deal with wounds, fractures and dislocations, there is abundant evidence of his common sense and experience. The following account of cleansing and closure of a wound could have been taken from a modern text:

> . . . in the case of a simple skin wound, if the lesion should not entail loss of tissue, or should be a lesion of the skull, you should treat it thus: in the first place, the lips of the wound and all about the wound should be débrided; and then the wound should be completely cleansed of fuzz, hair, and anything else, and let the wound be wiped quite dry with fine lint soaked in warm wine and wrung out. Thus the lips of the wound may be reunited as well as possible in accordance with their original healthy state . . ." (Book II, Chap. 1.)

Theodoric was well versed in fracture of the skull, the treatment of which follows sound lines; injury to the dura was recognized as a bad sign. His knowledge of the basic treatment of wounds of the chest and abdomen was good and obviously based on the handling of many cases. He sutured ruptured intestines over a suitable tube made from the stem of an elder. In fractures of the mandible he retained the fragments in position by wiring the teeth together, using gold or silver wire.

The third book deals with all aspects of inflammation, fistulæ, herniæ, hæmorrhoids, burns, skin diseases and other conditions. In cases of vesical calculi he advises medication at first, but if that fails he boldly recommends perineal lithotomy, giving all the details for extraction of the stone and after-treatment of the patient. He had great experience of fistula-in-ano and discusses the treatment of the various forms with confidence.

Book IV is short and deals, amongst other things, with headaches, epilepsy, paralysis and gout; in these conditions he has little but tradition to offer the patient.

Theodoric was a wise, skilful and humane surgeon. He gained his knowledge in the hard school of experience

[1] "The Surgery of Theodoric ca. A.D. 1267", translated from the Latin by E. Campbell, M.D., and James Colton, M.A.: Volume 2, Books 3 and 4; 1960. New York: Appleton-Century-Crofts, Incorporated. 8¼" × 5½", pp. 254, with two illustrations. Price not stated.

and treated his many patients with care and probably, in many cases, with success. This translation gives us an excellent picture of medieval surgery with all its limitations and shows how some of its exponents, by hard work, experience, common sense and wisdom, laid the basis for its subsequent advance. Theodoric did not rely on the work of others; he was original in many ways but always ready to acknowledge his debt to his teachers. He was certainly one of the great surgeons of the medieval period. The translators are to be congratulated on a job well done. As was stated earlier, it is a pity that the version used was not collated with the earlier manuscripts, and one could also have wished for a better glossary and index. But these are small matters, for in these two volumes are available the knowledge and experience of medieval surgery.

ORGANIC NITRATES IN THE TREATMENT OF ANGINA PECTORIS.

OVER the past few years a great deal has been written on the evaluation of organic nitrates—in particular, erythrol tetranitrate, pentaerythritol tetranitrate and triethanolamine trinitrate—in the treatment of angina pectoris. The aim has been to produce a drug which would be as active in controlling anginal attacks as nitroglycerin but which would act over a prolonged period. All these drugs were taken orally as tablets. Some investigators claimed very good results with one or more of these drugs, while about an equal number claimed that they were of little use. H. I. Russek,[1] who has worked on this subject for many years, has approached the subject from a different point of view. Noting the statement of a group of investigators that they obtained excellent results when one of these substances was administered sublingually, as nitroglycerin is generally administered now, Russek studied the clinical and electrocardiographic responses to erythrol tetranitrate given by the sublingual or buccal route in patients with established coronary disease, and compared the results of exercise tests with those observed in some of the same patients while receiving pentaerythritol tetranitrate therapy. Fifty-eight patients were used for the tests. Several of the patients had to be taken off erythrol tetranitrate because of unpleasant side effects. These were mostly of the nature of headaches, and were sometimes very severe. A few patients complained of dizziness and some of a burning sensation in the mouth. All these patients received the drug sublingually. In the other patients treated sublingually with erythrol tetranitrate there was unequivocal evidence of the therapeutic efficacy of the drug. In the exercise-electrocardiographic tests patients given erythrol tetranitrate sublingually showed comparable response to that following nitroglycerin, but the duration of action was considerably longer. In eight cases the electrocardiographic responses to erythrol tetranitrate given sublingually were compared with those observed following the oral administration of pentaerythritol tetranitrate in doses of 20 to 40 mg. The magnitude of the response to these drugs was similar, but with erythrol tetranitrate given sublingually favourable response was observed in five to ten minutes and persisted for one to two hours, while pentaerythritol tetranitrate given orally produced favourable effects only after an hour or later, but its action lasted for four to five hours. On the other hand, a sublingual tablet containing pentaerythritol tetranitrate and nitroglycerin was found to have little more effect than the anticipated nitroglycerin effect. Pentaerythritol tetranitrate does not act as a long-term vasodilator when administered sublingually.

Erythrol tetranitrate given by the sublingual route appears to be worthy of a place in the therapy of patients with angina pectoris. One 15 mg. tablet placed under the tongue generally produced an effect equal to that of 1/150 grain of nitroglycerin, but the duration of action was at least fourfold. The one objection to it is the fact that severe headache is common after its administration. It appears to be ideally suited for prophylactic administration prior to contemplated exertion or excitement; one 15 mg. tablet given sublingually has the effect of four to six nitroglycerin tablets given singly at 20 to 30 minute intervals. The long lag period with pentaerythritol tetranitrate is a great disadvantage, for it usually leaves the patient unprotected during the vulnerable period following the ingestion of food. However, this can be overcome by giving it half to one hour before meals.

[1] *Amer. J. med. Sci.*, 1960, p. 478 (April 16).

IS NUTRITION A FUNCTION OF THE VESSELS?

RUDOLPH VIRCHOW[1] boasted that he had freed medical science from the belief that the action of the vessels was important in the nutrition of the tissues. A blood supply is not necessary for many tissues (Wharton's jelly, cornea, cartilage, tendon, compact bone), whose supplies are carried by branching osteocytes and fibrocytes. There are specific affinities between definite tissues and definite substances,[2] by which, for example, a liver cell selects from the blood the materials it needs to produce bile and a fibrocyte that is necessary for the ground substance. When hyperplasia begins in any tissue, the parenchyma cells proliferate first, then certain cells in the ground substance develop into new vessels.[3] It is tissue activity which increases the circulation; reduced blood supply is the result and not the cause of tissue atrophy. Virchow emphasized this again and again during his remaining 43 years. It is the theme of some of his addresses, recently translated by L. J. Rather.[4] In the Croonian lecture of 1893[5] and the Huxley lecture of 1898 (London)[6] he described the difficulties he had had in defeating Rokitansky's theory of pathological exudates dependent on the blood. In a centenary number of Virchow's journal, E. H. Ackerknecht[7] states that many scientists have lost sight of Virchow's principle that "nutrition is not a function of the vessels". He considers that the new fashion of attributing diseases to ischæmia will not bear scientific criticism and points out that operations to induce hyperæmia will not always get the desired result. In another approach to the question F. J. Ebeling and Elizabeth Johnson[8] have recently shown that activity of hair follicles in rats does not depend on blood supply. The follicles in grafted skin were examined microscopically at regular intervals after transplantation. There was no vascular proliferation until the follicle started to proliferate. Activity in the follicles was cyclic and controlled by an intrinsic rhythm unrelated to the blood supply.

CHAIR OF OPHTHALMOLOGY IN UNIVERSITY OF SYDNEY.

AN anonymous benefactor has provided the sum of £50,000 towards the endowment of a chair of ophthalmology in the University of Sydney. It is understood that the University has accepted this gift and agreed to the establishment of the chair, although a further sum will be needed to provide for it in full. The announcement of the benefaction was made by the State Minister for Health, the Honourable W. F. Sheehan, at the Jubilee Dinner of the Ophthalmological Society of New South Wales on July 15, 1960.

[1] "Cellular Pathology", 1958, translated by F. Chance, New Sydenham Society, London: *72, 84, 246, etc.*

[2] *Ibid.*: 123.

[3] *Ibid.*: *404, footnote.*

[4] Disease, Life and Man, 1958, Stanford University Press.

[5] *Ibid.*: 151.

[6] *Ibid.*: 216 (also in *Brit. med. J., 1899, 2: 1021, October 8*).

[7] *Virchows Arch. path. Anat.*, 1959, 332: 1 (February 25).

[8] *J. Embryol. exp. Morph.*, 1959, 7: 417 (September).

Abstracts from Medical Literature.

OBSTETRICS AND GYNÆCOLOGY.

Cervical Incompetence as a Cause of Fœtal Loss.

E. S. TAYLOR AND R. R. HANSEN (*J. Amer. med. Ass.*, November 7, 1959) discuss the diagnosis, treatment and results in 40 patients with incompetence of the cervical os treated during the past two years at three Colorado hospitals. This condition was found to be a significant cause of repeated abortions between the sixteenth and twenty-eighth weeks of gestation and had an incidence of 1 in 500 pregnancies. Although it is usually due to past obstetrical or gynæcological trauma, a few cases are found in which no trauma has occurred and no physical defect of the cervix is apparent. A congenital abnormality has been postulated in such cases. The history of a patient with cervical incompetence is usually one of recurrent middle trimester abortions characterized by the sudden painless passage of amniotic fluid between the sixteenth and twenty-eighth weeks, followed by almost immediate expulsion of the conceptus. In one-half of the patients in this series there was a history of past gynæcological or obstetrical trauma. An apparently normal delivery at term rarely interferes with the functional integrity of the cervix. Presumptive evidence of incompetence of the cervical os can be demonstrated by the painless passage of a 7 mm. Hegar dilator through the internal os in the non-pregnant woman. The authors do not consider hysterographic confirmation of the incompetent os to be necessary, but a hysterogram is valuable for the demonstration of abnormalities of the uterine body which are to be considered in the differential diagnosis. Incompetence of the cervix is stated to become apparent between the fourteenth and twentieth weeks of gestation, and the diagnosis is confirmed when the cervix begins to dilate and the membranes can be observed or palpated in the cervical canal. The authors stress the importance of a careful selection of patients and choice of operation. Incompetence due to a deep laceration into the cervical canal requires trachelorrhaphy when the patient is not pregnant. The operative technique employed is a modification of the Shirodkar operation, using a single-thickness, 8 mm. "Mercilene", purse-string suture anchored by silk sutures at the level of the internal os. The 40 patients in the series had previously had 182 pregnancies with only 35 surviving children (19% survivals). Only 15 of the living infants were born at term, and these were all first pregnancies. Twenty of the surviving infants were premature, and seven of these have permanent complications of prematurity. Thirty-two of the 40 patients who had the Shirodkar type of operation performed during pregnancy have been delivered of normal infants, including two sets of twins. Twenty-two were delivered by Cæsarean section and 10 vaginally, after removal of the cervical suture. Two of the failures were considered due to deep lacerations of the cervix not amenable to this type of operation. The authors conclude that careful selection of patients for operation and performance of the operation during pregnancy between the fourteenth and twenty-seventh weeks result in successful pregnancies in at least 80% of patients.

Breech Presentation and Delivery.

D. HAY (*J. Obstet. Gynæc. Brit. Emp.*, August, 1959) discusses a study of 218 single breech deliveries over a four-year period. The teaching and procedure of the Liverpool school have been broadly followed. Emphasis has been placed on careful prenatal assessment of cases and experienced obstetrical supervision at delivery. There were 84 cases of assisted breech delivery, 25 full breech extractions, 29 spontaneous breech deliveries, and 27 lower segment Cæsarean sections in a total of 165 breech deliveries of babies weighing 3 lb. 10 oz. and over. The corrected fœtal mortality rate in this series was 1·2% after exclusion of 49 fœtal deaths from other causes such as premature labour, fœtal abnormalities, accidental hæmorrhage, etc. The Cæsarean section rate of 16% in the corrected series was largely determined by the age of the patient (over 36 years), previous obstetric history and large babies. During the six years prior to this study the corrected fœtal mortality rate was 5·6% and the Cæsarean section rate 17·5%. A trial of labour was carried out on 10 patients, of whom four came to Cæsarean section on account of incoordinated uterine action. Post-maturity was exceptional among these patients. The author stresses the importance of the position of the fœtal limbs in the prognosis of breech cases. The legs were extended in 141 cases and flexed in 42 cases. The breech with flexed legs is considered a potentially dangerous presentation on account of the increased risks of prolapsed cord, prolonged first stage and difficult second stage. The author advocates Cæsarean section in otherwise doubtful cases when the legs are flexed. The practice of pulling down a leg to encourage better pains in breech presentations with flexed legs is condemned. Cord presentation or prolapse occurred in eight of 42 breech presentations with flexed legs, while no case of prolapse of the cord was noted in cases with extended legs. The incidence of manual removal of the placenta in breech presentations with vaginal delivery was 13%, and delayed involution of the uterus occurred in 35%. The author considers that the chief danger to the fœtus in breech presentations lies in the soft tissue resistance of an undilated cervix and the muscles of the pelvic floor and perineum. For this reason the Liverpool technique of "assisted breech delivery" is preferred to the "hands off the breech" method. Trial labour in breech deliveries where there is doubt concerning disproportion is considered a safe procedure providing the obstetrician has excluded outlet contraction. Incoordinate uterine action is a dangerous complication in breech delivery, and, if persistent, is considered by the author to be an indication for Cæsarean section. He presents evidence that primary breech presentation is due to uterine abnormalities and that the practice of external cephalic version has no influence on the steady incidence of breech deliveries of about 3%. He considers it safer nowadays for the baby to be delivered either vaginally by the breech, or by Cæsarean section in selected cases, than to run the increased risk of external version, and therefore he condemns the practice of antenatal external cephalic version. The increased use of lower segment section for selected breech deliveries is considered responsible for the low fœtal death rate in this series. The relative safety of Cæsarean section for these patients is discussed and the author concludes with the dictum: "When the outcome of the fœtus is in doubt (in breech presentation) it is safer to carry out Cæsarean section."

Protoveratrine in the Prevention and Management of Eclampsia.

P. M. ELLIOTT (*J. Obstet. Gynæc. Brit. Emp.*, August, 1959) discusses recent methods employed in the prevention and management of eclampsia and reports a study of 25 patients treated at King George V Memorial Hospital, Sydney, with intravenously administered protoveratrine. This drug exerts a hypotensive response through generalized arteriolar dilatation, causes bradycardia through vagal stimulation, and has a digitalis-like effect on the failing heart. Initial intravenous medication was given to four patients with eclampsia, 16 with pre-eclampsia, four with essential hypertension and superimposed preeclampsia, and one with chronic pyelonephritis. In many of the cases it was used after magnesium sulphate and paraldehyde had been unsuccessful. The preparation used was "Puroverine" in a dosage of 0·1 mg. in 10 ml. of distilled water, given at the rate of 1 ml. per minute until a fall of about 30 mm. of mercury in the systolic pressure and 25 mm. in the diastolic pressure was recorded. Maximum response was usually obtained within 20 to 60 minutes of injection and if no response occurred the intravenous injection was repeated. After an initial satisfactory response the blood pressure levels were maintained around 120–140/70–90 mm. of mercury by intramuscular injections of the drug. An effective initial hypotensive response was obtained in 24 cases, being immediate in 16 and delayed in eight. Four patients who had an eclamptic fit or fits before treatment had no further convulsions after the intravenous administration of protoveratrine. No patient with preeclamptic toxæmia had a convulsion after initial protoveratrine treatment. Five preeclamptic patients with headache and one with blurred vision were promptly relieved by this treatment. One patient developed anuria after treatment and six patients with known oliguria had improved urinary output after treatment. In all of the 24 patients diuresis was established within 36 hours of intravenous injection. The rate of diminution of œdema paralleled the diuretic response. With one exception there was an appreciable diminution of the degree of proteinuria in all cases. There was one maternal death in the series. Among 16 patients who received intravenous injections of protoveratrine *ante partum* but after gestation had reached 28 weeks, there were 12 living children (one case of twins), two stillbirths and three neonatal deaths. Side effects

due to the drug occurred in eight patients, and included nausea and vomiting, excessive hypotension, cardiac arrhythmias, retrosternal burning, swelling of the salivary glands, periorbital œdema, excessive salivation and rhinorrhœa. All such side effects were rapidly controlled. The author discusses seven cases in which there was a delayed response to protoveratrine and the single case of failed response. He concludes that, in the absence of exact knowledge concerning the ætiology of eclampsia, the most profitable line of treatment would appear to be that directed towards the relief of generalized vasoconstriction, and that protoveratrine administered in this way is a most useful drug and, in the majority of cases, will restore the patient to a state approaching physiological normality.

Chlorothiazide for Preeclamptic Toxæmia and Essential Hypertension in Pregnancy.

R. A. TENNENT AND D. W. LESLIE (*Scot. med. J.*, March, 1960) report the results of treatment of 40 patients with preeclamptic toxæmia and 14 patients with essential hypertension in pregnancy by chlorothiazide. Patients near or beyond the thirty-eighth week of pregnancy were not included, as the authors favour induction in such cases. The cases of preeclamptic toxæmia were selected from 588 toxæmic patients admitted to hospital who had failed to respond to bed rest, sedation and dietetic treatment for 48 to 72 hours. The dosage of chlorothiazide was one gramme twice daily for four days, with a three-day rest period between courses. The drug was found to be singularly free of unpleasant side effects. Potassium deficiency occurred in only one case, and this was not evident clinically. Twelve of the cases of toxæmia were moderate and 28 were severe (blood pressure above 160/100 mm. of mercury). Results of treatment were assessed on water excretion as judged by weight loss, and on the effect on the course of the disease. Weight loss occurred in 38 patients, varying from 2 oz. to 11 lb. 4 oz. in one course. One of the two patients in whom the drug was ineffective developed eclampsia. Œdema and headaches, when present, disappeared and the blood pressure tended to fall when weight loss occurred. The average decrease in blood pressure was 30 mm. of mercury systolic and 27 mm. diastolic. The effect on albuminuria was variable. The authors consider that an important object in the management of toxæmia of pregnancy is to postpone the need for delivery until the fœtus is judged to have the maximum chance of survival. Chlorothiazide treatment allowed pregnancy to continue for a further two to four weeks in 13 cases, four to six weeks in two cases, and six to nine weeks in two cases. In these 17 cases two infants were stillborn and one died from œsophageal atresia. Apart from allowing the pregnancy to continue, chlorothiazide was not thought to exert any influence on placental function. Eight of the 40 patients with preeclamptic toxæmia were delivered by Cæsarean section—four for fulminating toxæmia, two for a small baby failing to grow, and two for fœtal distress in labour. Chlorothiazide was found to be valuable in the treatment of the 14 patients with essential hypertension, five of whom had simultaneous treatment with hypotensive drugs such as hexamethonium bromide and mecamylamine hydrochloride. No serious complications occurred with this drug. The authors suggest that a careful selection should be made before its use. Nine out of ten preeclamptic patients admitted to hospital require no treatment beyond rest, sedation and dietetic measures. Patients under chlorothiazide treatment should be kept under close observation for evidence of a reduced rate of growth of the fœtus despite reduction of œdema and blood pressure. Chlorothiazide is the most effective agent the authors have used for controlling the maternal symptoms in preeclamptic toxæmia.

Synchronous Combined Abdomino-Vaginal Hystero-Colpectomy.

J. HOWKINS (*J. Obstet. Gynæc. Brit. Emp.*, April, 1959) reports a series of 50 patients with carcinoma of the cervix uteri treated by synchronous combined abdomino-vaginal hystero-colpectomy and assesses the scope, mortality and morbidity of the operation. All patients had invasive carcinoma of the cervix and no radiation therapy had been used either pre-operatively or post-operatively. The author considers this operation permits wider and better removal of the parametrium and paracolpos and is particularly advantageous for growths extending far down the vagina. The importance of teamwork, modern hospital facilities and skilled nursing is emphasized. The anæsthetic of choice is epidural block, since it affords moderate hypotension with minimal oozing and contraction of the bowel. Abdominal dissection follows the classical Wertheim or Bonney operation, commencing around the common iliac vessels, proceeds down to expose the ureter, and clears the lateral pelvic wall to the levatores ani muscles. Great caution is exercised when dissecting and ligating the branches of the hypogastric venous network. Two useful instruments employed by the author at this stage are a hæmostatic bulldog clamp for the common iliac artery and silver wire clips for venous oozing. The vaginal operator can be of great help in finding the tissue plane between the rectum and the vagina and avoiding injury to the terminal branches of the superior hæmorrhoidal arteries. The vaginal part of the operation follows Schauta's procedure, the whole mass of paracolpos and parametrium being separated from the lateral pelvic walls, the ureter being guarded by the abdominal surgeon. When the specimen is removed, hæmostasis is secured, and the cavity in the pelvis is lined with oiled silk into which gauze is packed. Important features of post-operative care include the following: the use of an indwelling catheter for three weeks; a mild oil aperient on the second or third day but no enemata; removal of the pelvic gauze pack and oiled silk under light anæsthesia after 48 hours. The author discusses urinary complications of this operation, of which there were 21 in this series. Ten of these were mild and transient, while 11 presented major problems. Four patients had severe stress incontinence, five had loss of bladder sensation without incontinence, and two had recurrence of growth leading to fistulas. There was one operative death in the series, the result of air embolism during transfusion. The author considers this synchronous combined operation the most extensive yet devised for the removal of cancer of the cervix. The extensive removal of tissue which this operation permits is achieved at the risk of denervating the bladder, which may result in the urinary complications described.

Primary Carcinoma of the Vulva.

M. STENING AND P. ELLIOTT (*J. Obstet. Gynæc. Brit. Emp.*, December, 1959) review a personal series of 52 patients with primary carcinoma of the vulva treated by the senior author between 1950 and 1957 at the King George V Hospital, Sydney. The average age at onset was 68 years, the youngest patient being 40 years old and the eldest 92 years. Thirty-eight patients (76%) complained of pruritus vulvæ, present in some cases for up to 25 years. Nine presented with a sore or lump, two on account of pain and three with bleeding and discharge. The microscopic appearance was that of squamous carcinoma. The pre-existing vulval disease in 74% of the cases was leukoplakia vulvæ (in 62% atypical epithelium was present, and in 12% there was lichen sclerosus et atrophicus). The triad of pruritus, leukoplakia and the epidermal type of the ulcerative form of squamous vulval carcinoma would appear to be a relatively frequent clinical entity in the elderly patient. The important link between the known symptoms (pruritus) and the unknown entity (carcinoma) is atypical epithelium. The authors state that it is as rational to submit the aged person with pruritus and external vulval manifestations to skin biopsy as it is to perform diagnostic curettage for post-menopausal bleeding. Clinically, atypical epithelium is regarded as dangerous and should be treated by excision (simple vulvectomy). The authors stress that leukoplakia is a clinical diagnosis only and kraurosis vulvæ should be discarded from the nomenclature. Skin biopsy is essential to establish the diagnosis.

Transitory Demineralization of the Hip in Pregnancy.

P. H. CURTIS AND W. E. KINCAID (*J. Bone Jt Surg.*, October, 1959) state that complaints of hip pain are comparatively frequent in pregnancy, but that to the best of their knowledge radiological changes seen in association with hip pain in pregnancy have not previously been described. They proceed to describe three cases of a syndrome characterized by pain of varying severity in one or both hips or thighs, which develops during the last trimester of pregnancy. X-ray films show a spotty demineralization with sharply localized margins, involving one or both femoral heads, a small part of the femoral neck, and the acetabulum. In each of the three patients the pain subsided and the X-ray appearance returned to normal within several months of delivery. The authors state that they do not know the cause of this syndrome, but that they suspect it to be of neurogenic origin.

Brush Up Your Medicine.

RHEUMATIC FEVER.[1]

Ætiology.

RHEUMATIC FEVER is a complication of group A beta-hæmolytic streptococcal sore throat. Symptoms of rheumatic fever develop between one and four weeks after the initial infection.

It can occur at any age, but is most common between 5 and 15 years. It is a relapsing disease, and the recurrence rate may be as high as 80%. It affects the heart in 95% of cases during the acute attack.

The severity of the streptococcal infection bears no demonstrable relationship to the frequency of rheumatic relapse.

Other ætiological factors are chorea, emotional stress, inherited predisposition and environmental factors such as malnutrition, dampness and climate. The disease is commoner in temperate zones.

Predisposition to rheumatic fever is inherited as a single recessive gene.

Diagnostic Criteria (American Heart Association).

The following diagnostic criteria are laid down by the American Heart Association:

1. *Major Criteria*: Polyarthritis, chorea, nodules, erythema marginatum, carditis.

2. *Minor Criteria*: Fever, arthralgia, prolonged *P-R* interval, raised erythrocyte sedimentation rate, evidence of preceding hæmolytic streptococcal infection, previous history of rheumatic fever or carditis.

To fulfil those criteria required for diagnosis of rheumatic fever, a case must have either two major and one minor or two minor and one major criteria.

There are no specific laboratory tests, and diagnosis must be made on clinical grounds.

Other laboratory findings are: C-reactive protein in the blood, persistent leucocytosis, a gradual rise in anti-streptolysin titre, abnormal electrocardiogram.

Treatment.

The rheumatism and fever are short-lived as a rule and easily controlled by salicylates. Generally there are no residual joint lesions.

Thus, apart from symptomatic treatment for the relief of pain and the abolition of fever, therapy is directed towards the prevention of cardiac damage.

Rest in bed is indicated until signs of rheumatic activity have disappeared, and administration of salicylates should be continued for a further two weeks. The minimum is usually two months' bed rest.

Vitamin K is necessary, as prolonged salicylate therapy reduces prothrombin levels in the blood.

Penicillin has no effect on established rheumatic fever, but is the drug of choice in eradication of beta-hæmolytic streptococci from the throat.

Cortisone and ACTH.

Whilst cortisone will decrease and even, in high dosage, abolish many inflammatory responses, its effect on the Aschoff body is still unknown.

The controversy regarding the relative importance of cortisone and salicylates in rheumatic fever is still not concluded, although it is recognized that the first wave of enthusiasm that accompanied the advent of steroid therapy has not been borne out by experience.

Both hormones and salicylates are of value in certain circumstances in the acute stage.

Cortisone acetate, in a dosage of 100 mg. daily, gives a reasonably suppressive effect, but the dose should be reduced as soon as practicable. A relapse may necessitate further steroid therapy.

A low salt, rich calcium diet should be given with cortisone, and 30 to 45 grains of potassium chloride should also be given daily.

Hormonal treatment must be instituted early in those cases where it is considered necessary.

Prednisolone is often to be preferred, especially in the more severe case, as it lacks the salt-retaining properties of cortisone.

A total of 25 mg. daily is a satisfactory dosage level, being reduced later to 20 and then 15 mg. according to the clinical response and the erythrocyte sedimentation rate.

At the end of steroid treatment, adrenal function may require stimulation with a few doses of ACTH.

These patients should also be on daily prophylactic therapy, and a careful watch must be kept for the possible masking of an acute infection by steroid therapy.

Prophylaxis.

Without prophylactic treatment more than half of the children develop recurrences which aggravate the cardiac damage still further. The following measures are important:

1. *Eradication of Hæmolytic Streptococci.*—This is the beginning of prophylaxis and should commence as soon as the diagnosis is definite, even though attempted culture from initial throat swabbing fails to yield a growth of beta-hæmolytic streptococci (Group A). Penicillin V (oral) should be given for at least 10 days in full dosage, after which continuous oral prophylaxis should begin.

2. *Continuous Oral Prophylaxis.*—This may be maintained with (i) benzathine penicillin (oral), 200,000 units twice daily, or (ii) sulphadiazine, 0·5 gramme twice daily. The former is preferable. The period of greatest risk after the initial attack of rheumatic fever is the first five years. Oral prophylaxis should continue at least for this period; but when there is definite evidence of carditis, prophylaxis should continue indefinitely.

3. *Adequate Treatment of Intercurrent Streptococcal Infection.*—All sore throats in the rheumatic child should be presumed streptcooccal unless proven otherwise. Penicillin is the drug of choice for total eradication of streptococci and prevention of rheumatic recurrence; an adequate serum penicillin level must be maintained for at least 10 days, even though symptoms usually disappear rapidly. This must be achieved by the oral administration of from 800,000 to 1,000,000 units per day of benzathine penicillin (oral) in 4 or 5 divided doses. If preferred, a single daily intramuscular injection of a preparation containing benzathine, procaine and crystalline penicillin may be given in appropriate dosage. On the rare occasions when penicillin is contraindicated, sulphadiazine or another antibiotic (e.g., erythromycin or a tetracycline) may be used.

4. *Penicillin Cover for Operative Procedures.*—This is self-explanatory.

ALEX JOHNSON,
Canberra.

[1] No. 5 of a series of synopses prepared by Dr. Alex Johnson of Canberra in collaboration with the Australian College of General Practitioners. Each synopsis has been submitted for approval to a leading member of the College, to a professor of pharmacology and to a specialist in the field concerned.

Congresses.

WHO TUBERCULOSIS SEMINAR.

THE WHO Tuberculosis Seminar was held at Sydney from May 23 to June 3, 1960, inclusive. There were two sessions per day, and the average attendance was 60. Various topics were discussed in plenary sessions, open forum and group discussions. The following draft conclusions were presented at the final session.

Topic I. Measurement of the Extent of the Tuberculosis Problem.

As guesses and impressions as to the prevalence of tuberculosis in a community have often proved wrong, the extent of the problem should be measured. It is always possible to do something, and a prevalence survey, aimed at examination of 100% of persons in random sample groups representative of the whole community, is the best. This ensures sound planning, optimum use of resources, the support of the authorities and a baseline and means of periodic evaulation.

Topic II. Tuberculin Testing.

Tuberculin testing is a most valuable tool in any tuberculosis control programme. In spite of some relatively minor problems which still need to be clarified, the tuberculin test is one of the best understood and most specific skin tests available. Local study may resolve these problems. The intracutaneous test is favoured, with the use of a properly administered standard dose of a standardized product.

Topic III. Case Finding Including Mass Miniature Radiography.

Case finding is an important measure in tuberculosis control, the aim being to detect and then to treat the infectious and potentially infectious persons. Case finding could be conducted by methods adapted to local geographic and economic conditions on the basis of tuberculin testing, radio-photography and bacteriology, and may need to be directed primarily toward selected groups of the community. Where X-ray facilities are not adequate, tuberculin testing and sputum examination may be used for case finding.

The discovery of a case should always be followed by some action on the part of the tuberculosis control authorities, varying accordingly to measures available in the area. Special attention should be directed to contacts of infectious persons, and the discovery of infection in a child should lead to a careful search for the source of the infection.

Topic IV. The Antimicrobial Therapy of Pulmonary Tuberculosis.

1. Chemotherapy has made a most important contribution to the control of tuberculosis.

2. Two-drug therapy is best for treatment of the active case, and this should be continued for a minimum of twelve months. When this is not possible, attempts should be made to give three months of combined two-drug therapy followed by INH alone for nine to twelve months. Irrespective of the drug used, it should be administered daily.

3. Although two-drug therapy is preferable, the use of isoniazid alone is an acceptable procedure in domiciliary programmes in circumstances in which insistence on the use of a companion drug would either greatly limit the scope of a programme or prevent its operation entirely.

4. The possibility that initial triple-drug therapy possesses slight advantages over two-drug therapy cannot be absolutely excluded on the basis of the present scientific evidence. Nevertheless, as no definite advantage of triple-drug therapy has yet been demonstrated in man or laboratory animals, and the holding of PAS or streptomycin in reserve has certain advantages in reducing the pool of ultimate treatment failures, the practice of initial triple-drug therapy is not to be encouraged except in fulminating tuberculous disease.

5. The recommended daily dose for an average man (50 to 70 kilograms) is of INH 300 mg., of streptomycin 1 gramme, and of PAS 10 grammes.

6. The application of treatment to large numbers of people requires a simple, readily applicable drug regimen, which is effective and acceptable to the community.

7. There is a trend to give INH alone for the treatment of potentially active lesions, patients with minimal lesions and patients with moderately advanced lesions without a cavity, or with cavities less than 3 cm. in diameter. It may also be used for follow-up therapy for patients who have responded favourably to dual drug therapy. INH resistance in non-infectious patients is not an important problem.

8. In whatever way INH is given, some INH-resistant bacilli may eventually appear; but possibly because some are different from normal bacilli, this has thus far not proved to be an epidemiological problem.

9. A failure rate of 10% to 15% may be anticipated with chemotherapy alone. Some of those persons may be suitable for surgery, others may respond to the "secondary" drugs. A hard core of "positive" patients will remain, however.

General Treatment.

10. Properly supervised domiciliary care has been found to be satisfactory and to compare favourably with hospital treatment.

11. If hospital beds are available, a preliminary period in hospital is valuable for isolation assessment, intensive combined therapy and education for both patients and contacts.

12. Surgery, while playing an important part in the treatment of the individual selected patient, is of minor importance from the public health point of view.

13. Steroid therapy has limited application in the treatment of tuberculosis.

Topic V. Bacteriology.

1. The results of bacteriological examination are of the greatest importance in a tuberculosis control programme. Wherever possible, cultures as well as smears should be made.

2. If practicable, sputum should be examined where collected. It should be, ideally, collected under supervision.

3. Where the number of specimens to be examined is large, fluorescent microscopy may be valuable and should be encouraged.

4. When sputum cannot be produced by the person with X-ray abnormality, laryngeal swab culture should be used. Trained technicians can be used for this as for other routine laboratory procedures.

5. In places with well-equipped laboratories, the possibility of finding atypical mycobacteria causing disease simulating tuberculosis should be kept in mind.

6. Laboratory tests on drug resistance are of great value in assessing the epidemiological situation of one's own community. The use of such tests in the treatment of an individual patient, however, represents a refinement that, while sometimes helpful, is not essential in the mass chemotherapy programmes.

Topic VI. B.C.G. Vaccination.

1. B.C.G. vaccination is of value, and should be given on a mass basis in high-prevalence areas and selectively in low-prevalence areas.

2. It should be incorporated in the tuberculosis section of an over-all public health programme.

3. The intracutaneous method of administration is generally favoured.

4. It is advisable to reserve B.C.G. for those who do not react to the tuberculin test. However, no evidence has been presented that B.C.G. vaccination of tuberculin-sensitive or even tuberculous patients has occasioned harm.

5. In high-prevalence areas, all new-born children should be vaccinated with B.C.G.

Topic VII. Chemoprophylaxis of Tuberculosis.

The use of isoniazid in so-called disease prophylaxis—that is, in tuberculin reactors without obvious disease—is recommended as follows:

1. In all infants and pre-school children who are "natural" reactors to tuberculin.

2. In all children who are reactors at school entrance and who have not received B.C.G. since shortly after birth.

3. In school children and adolescents who are tuberculin reactors and who fall into the following three classes: (*a*) where prevalence surveys show a relatively high incidence of tuberculosis disease in the 6-12 to 12-20 year old age groups, or where a relatively high incidence is found on local survey; (*b*) individuals whose tuberculin reaction to a standardized dose of tuberculin is large; (*c*) who are the household associates of patients treated on a domiciliary basis, and those who have a florid tuberculin reaction; (*d*) recent converters at any age.

4. In tuberculin reactors at any age who presumably represent "poor hosts"; such as (*a*) diabetics, (*b*) silicotics, (*c*) persons receiving steroid therapy for non-tuberculous disease.

Topic VIII. Planning, Organization and Evaluation of Tuberculosis Control Programme.

1. The tuberculosis control programme should have centralized direction and be planned on a community basis within the framework of the general public health programme.

2. Non-professional auxiliary personnel should be employed in the control programme where shortage of medical personnel exists and large numbers of workers are needed in carrying out an effective programme.

3. Review of the control programme should be constantly kept in mind, and the programme should be evaluated periodically by repeated prevalence surveys.

4. It is generally agreed that the treatment of tuberculosis should be provided free, and economic assistance should be given if possible.

Topic IX. General.

1. A person with tuberculosis is an individual whose tuberculous infection requires action.

2. The ultimate aim of a programme is eradication; but no country represented at the seminar expected to achieve it in the next 25 years.

3. The available evidence regarding nutrition indicates that undernourishment does not necessarily reduce effectiveness of chemotherapy in active cases; but its effects on the relapse rate in drug-arrested cases is not known and requires further investigation. The observation that the resistance of laboratory animals to a challenge infection can be greatly influenced by varying the ratio of amino acids in the dietary protein may prove a most valuable clue which should be actively followed up.

4. Contacts must always be investigated by the usual methods, and non-reactors to tuberculin should be given B.C.G. Chemoprophylaxis should be given to positive reactors under the age of six years, and to all, irrespective of age, with a florid reaction.

British Medical Association.

NEW SOUTH WALES: SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on November 26, 1959, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, DR. M. S. ALEXANDER, the President, in the chair.

Poison Hazards in the Home.

DR. W. G. GRIGOR read a paper entitled "Accidental Ingestion of Poison in Childhood" (see page 175).

DR. F. W. CLEMENTS read a paper entitled "The Epidemiology and Prevention of Acute Accidental Poisoning in Childhood" (see page 172).

DR. G. M. LEHMANN, in opening the discussion, said that he proposed to give some reflections on poisoning hazards from the psychiatric viewpoint. Dr. Grigor and Dr. Clements had covered the problem very well. However, attention might be paid to the fact that most consideration had been centred on the very small child; in that case they were most concerned with the parent and with child-centredness. An older child who took poison might have a very good, but obsessional, parent who bred opposition and negativistic tendencies in the child; the child would then do the very thing that he had been told not to do. However, Dr. Lehmann was sure that in relation to children of the very young age group, the responsibility was largely one of care and training of the child. Dr. Lehmann then referred to the problem of suicide in children, and said that it was very rare. The only figures he had been able to obtain were from America. In the period 1926-1929 there had been 33 cases per year in which a child committed suicide; the children were aged between 10 and 14 years. The figures took no account of unsatisfactory and unsuccessful attempts at suicide. The methods of suicide were: the use of firearms (79% of cases); hanging and strangling (14%); swallowing of corrosive and caustic substances; inhalation of poisonous gases (5%); the use of cutting and piercing instruments (2%); crushing (1%). Falling from heights and jumping out of windows were not mentioned in the figures. That was probably because most American homes were of the bungalow type, so that such falls and jumps were not important. Referring to the taking of poisons, Dr. Lehmann said that in a young child the motivation might be towards play—doing something that mother did—or simply the activities of a hyperkinetic child. More often the ingestion of poison was due to incorrect management of medicinal or household substances. Perhaps occasionally play activities of older children, such as playing at doctors and hospitals, might lead young children to take pills, or they might be reenacting something seen on films or television. Dr. Lehmann finally said that he did not think there were many hysterical attempts to take noxious substances on the part of young children.

DR. JOHN BEVERIDGE referred to Dr. Clements's statement that the mortality rate was in the vicinity of 40 per million, and said that he did not know how many children there were in New South Wales who had not passed their fifth birthday—there might be 100,000 to 200,000. He asked Dr. Clements whether he could give definite information on that point. Dr. Beveridge said that he had recently had information that the over-all mortality figure for children up to the thirteenth birthday in New South Wales was of the order of 2500 per year. He asked Dr. Clements how many of those children died from accidental poisoning, as distinct from therapeutic poisoning. He had recently had cases in which children had been poisoned by aspirin as the result of enthusiastic treatment by parents and doctors. Dr. Beveridge then referred to the fact that often disturbances in the home (illness of the mother, and so on) were directly related to street accidents in which toddlers were run over. He asked whether the same thing applied to poisoning. He then asked Dr. Grigor what measures he recommended for the production of induced emesis, which he had advocated. Dr. Beveridge then quoted the case of a child in the country who had taken stilbœstrol, which probably would not have done him a great deal of harm. He was subjected to repeated administration of emetics and attacks with the stomach tube, and had emesis until he died. Dr. Beveridge finally asked Dr. Grigor his opinion on the treatment of children who had taken the more unpleasant types of poisons, such as corrosives and caustics, digitalis and the organic phosphorus compounds.

Dr. Clements, in reply, said that the average number of deaths of children aged between one and four years in New South Wales was about 12 per year; the number in Australia was 18 to 20 per year. The figures were more or less an extrapolation at the moment, as the Government statistician had not completed his final figures. The number of such deaths for the whole of Australia was about 23 per year. In reply to Dr. Beveridge's question about the role played by a disturbed household, Dr. Clements said that he thought it would be very difficult to collect information on that point, unless one was on the spot with a camera. The mother might not be able to avoid risks to the child at all times. For example, she might have left the kerosene quite safely in the same position on many occasions, and for some unexplained reason the child might on another swallow some. As he had said in his paper, the question of the epidemiology of poisoning was very difficult.

Dr. Grigor, in reply, said that the recommended method of inducing emesis was the administration of tincture of ipecacuanha. He had had no experience himself, but overseas authorities said that it was the most satisfactory of all. That had been one of the points made by Dr. Kerr Grant, who said that it was the method recommended by Dr. Robertson of Cincinnati. Every home should have tincture of ipecacuanha; there was no danger of poisoning by it—no child would be able to keep enough of it down. Ferrous sulphate poisoning was a difficult problem; parents did not recognize how badly poisoned the child was. Dr. Grigor thought that if he had to deal with such a case, he would induce emesis at all costs, either with tincture of ipecacuanha, or by persuading the child to drink large quantities of milk and then putting his finger down its throat. Referring to poisoning by the ingestion of caustics or corrosives, Dr. Grigor said that if one could get to the child within minutes there was some case for aspiration perhaps with a soft Ryle's tube. Otherwise treatment was an almost impossible task. The giving of bland substances might pave the way for the giving of neutralizing agents. However, by the time information concerning what to do could be given to those requiring it urgently, the damage would be done.

DR. A. R. TINK gave a caution against the use of an artificial kidney in the treatment of a child in the poisoning age group. He said that it could be a dangerous procedure. Exchange transfusion was safer and probably as effective. That, in his opinion, was an important point.

DR. S. E. J. ROBERTSON first referred to the emphasis Dr. Clements had laid on the labelling of containers, and to one or two letters that had appeared in the Journal on the labelling of doctors' pills. He said that children had a bad habit of swallowing pills on a Saturday afternoon when the chemist's shop was closed. Thus no one knew, and it was impossible to find out, what the pills contained. It had been suggested that doctors when writing prescriptions should put *"nomen proprium"* on them. However, that had the disadvantage that some chemists did not know the meaning of the phrase. Dr. Robertson then referred to the proposed poisons centre, and said that it was very important from the point of view of publicity; it would focus parents' attention on the great danger of poisoning to children in the 10 months to three years age group. The poisons centre should be linked up with a treatment centre, preferably

at the Royal Alexandra Hospital for Children. Dr. Robertson asked whether the time had not come for that unit to be formed. He quoted the case of a boy, aged three years, who was left alone in the car by his mother for a short time. He opened the glove box and found a packet of "Laxettes", of which he ate 25. Normally they would not have hurt him, but he happened to be one of those children who were sensitive to phenolphthalein. He was admitted to hospital at 4 p.m., his stomach was washed out, and he was put to bed. Dr. Robertson saw the child and thought that he would be all right. However, the child developed diarrhœa at 2 a.m., and he (Dr. Robertson) was telephoned about 6 a.m. by a worried resident medical officer, who said that the child was having convulsions. The child died, the picture being one of hypernatræmia. A highly trained team was needed to deal with a case of that type. Dr. Robertson then quoted a second case, that of a doctor's child, one of five small boys aged up to seven years, who on one occasion all accompanied their father on his rounds. When the father returned to the car from one call, he missed one child, and was told that he was asleep on the floor. He was, with a very slow respiratory rate. The child had taken a large number of "Physeptone" tablets. The father without delay drove the child to hospital, where appropriate treatment was immediately given, and the child survived. Dr. Robertson said that he had difficulty in dealing with cases of severe aspirin poisoning. If anybody could get the necessary experience in dealing with that type of poisoning, he would be of great help to all medical practitioners.

PROFESSOR LORIMER DODS referred to the need for a poisons centre, which he held should be established within the Royal Alexandra Hospital for Children. He said that two years earlier an attempt to establish such a centre had been made by Dr. Donald Kerr Grant, a member of the staff of the Institute of Child Health; but unfortunately the work had temporarily lapsed because Dr. Kerr Grant had taken up an appointment in the United States of America. Professor Dods hoped that a member of his staff, Dr. Bryan Dowd, would now take over the onerous duty of attempting to establish such a centre.

DR. D. G. HAMILTON said that he agreed with what Professor Dods and the previous speakers had said of the great importance of a poisons centre. Those on the Council of the New South Wales Branch of the B.M.A. who had given consideration to the question and had discussions with the Minister for Health and Professor Thorp might well think again of its function in making parents aware of the danger of poison, and not simply making available information from the manufacturers on a comprehensive list of medicinal, household and garden poisons. The question of public health education was something about which more thinking might well be done.

Dr. Alexander, from the chair, said that it had been a very interesting evening. He realized that the speakers had been largely from the Royal Alexandra Hospital for Children. He reminded his colleagues that the problem existed also in adults, and that it was a much larger problem than had been suggested at the meeting, because many patients were dealt with by general practitioners. He wondered whether the role played by loss of the mother's attention might be a subject for investigation by the Australian College of General Practitioners. He was also reminded of the iatrogenic poisoning to which they all subjected their patients from time to time. Misinformation seemed to him to be a potent source of trouble to general practitioners. There was, for example, the case in which an empty bottle was found beside a baby, and the immediate problem was whether he had swallowed any of the contents. That had happened to his own two-year-old child, during a busy surgery hour. He had handed the child over to his nurse for treatment, which was energetically applied, but all attempts to induce emesis were unsuccessful. However, the child remained very well, and the only deduction he had made was that the child must have been suffering from hyponatræmia, which the treatment had corrected. Dr. Alexander then said that the question of a poisons centre had been taken up with the Director-General of Health and Professor Thorp by Dr. Hugh Hunter, Dr. D. G. Hamilton and himself in February, 1959, but nothing had yet become of the negotiations. He hoped to have the matter settled before his term of office as President of the Branch ended. There was some indication that it would be dealt with at Commonwealth level by the National Health and Medical Research Council. Professor Thorp had put up the practical suggestion that he and his department would be prepared to run the centre. It would cost about £5000 or £6000 to establish it, and then about £2000 per year to run it. Dr. Alexander, in conclusion, thanked Dr. Grigor and Dr. Clements for giving of their very wide knowledge.

Out of the Past.

A PROPOSED NEW WOMEN'S HOSPITAL FOR SYDNEY.[1]

[From the *Australasian Medical Gazette*, November, 1901.]

WE understand that it is the intention of the Benevolent Society of New South Wales to erect a new Hospital for Women (of about 200 beds) on the ground recently purchased by them in Paddington. The site is a very suitable one, comprising about 5½ acres and extending from Glenmore Road to near Oxford Street. The house at present standing on the property has been converted into a temporary maternity hospital. For many years the midwifery department of the Benevolent Asylum was the sole training school in Sydney for both medical students and midwifery nurses, and even of late years, when several other kindred institutions have sprung up, it has held its position as the chief Lying-in Hospital. The other branches of the Society's work have been entirely separated from the maternity branch, and are now carried on in Valentine Street near the site of the old institution. It is expected that the Women's Hospital now carried on in Crown Street, Surry Hills, will become merged with the new hospital, and that about 100 beds will be allotted to the midwifery side, and a like number to the treatment of diseases peculiar to wemen.

Obituary.

WALTER PATON MacCALLUM.

THE untimely passing of Walter Paton MacCallum, C.B.E., D.S.O., M.C., E.D., M.B., Ch.M., F.R.A.C.P., on November 22, 1959, has removed a distinguished figure from Australian medicine and left a mournful space that was especially his own in the ranks of the profession in Sydney. He was widely known and respected throughout Australia for his attainments in peace and war, and those who knew him well, and had penetrated his natural and dignified reserve, loved him for his completeness and excellence as an individual. For these fortunate ones, he can have no replacement. And for these, it is not possible to speak or write of him except in terms of the superlative.

Walter MacCallum embodied a rare collection of the qualities that are admired in a man—strength of will and physique; ability, and clarity of mind and expression; courage, both physical and moral; equanimity in the daily round as well as in danger and adversity; kindness and helpfulness; absolute integrity. Yet he was modest, almost shy, and so reluctant to obtrude that the spectacular in his career tended to escape notice, and the breadth of his attainment to be hidden. All who worked with him will remember how he was always at hand to help or support, or carry the load, and how completely this was taken for granted.

Walter MacCallum was born in Sydney, to an illustrious scholastic family, on April 3, 1895. His Scottish father, Sir Mungo William MacCallum, a distinguished teacher and literary figure, came to Australia as Challis Professor of Modern Literature in the University of Sydney in 1887, and after retiring from his chair in 1920, became in turn Vice-Chancellor (1924-1927), Deputy Chancellor (1928-1934) and finally Chancellor (1934-1936) of the University. His mother was also a highly cultured person. The family atmosphere of literary scholarship in which Walter was nurtured doubtless helped to implant his love of English literature—though he was by no means a "bookish" man—his appreciation and practice of style and power of expression in writing, and his keen general interest in education. His elder brother, Mungo Lorenz MacCallum, who was a Rhodes Scholar and later practised as a barrister, died in 1933 at the age of 48 years.

From 1908 to 1913, Walter MacCallum attended the Sydney Grammar School, where he maintained the MacCallum family tradition for scholarship. At the Junior Public Examinations in 1911 he won the medals for both Latin and Greek, and at the Senior Public and Leaving Certificate Examinations in 1913 the Greek Medal and the Cooper Scholarship in Classics. The latter awards were accompanied by first class honours in English, French, Latin, Greek and Ancient

[1] From the original in the Mitchell Library, Sydney.

History, and he was awarded a university exhibition. He played as thoroughly as he worked, and was captain of the boats and played for the school in the first XV. He ended his happy schooldays as senior prefect and captain of the school.

In 1914 he commenced his studies in the Faculty of Arts at the University of Sydney, for it was his intention to obtain an arts degree before proceeding to a medical course. In the annual examinations of that year he obtained first place in Greek, second place in Latin and passes in English and physics. He had entered as a student at St. Andrew's College, and is remembered by college friends as a serious student who placed study first, but who tempered hard work with dry humour, sport and good fellowship—as he continued to do throughout his life. Meantime World War I had commenced, and his university work was interrupted by his enlistment in the Australian Imperial Forces, and by trying years in which he gained distinction and honours as a soldier.

On his return from service in 1919, Walter MacCallum at once resumed his studies at the University of Sydney, this time in the faculty of medicine. "It appeared that the change, difficult for many, was no trouble to him", notes a fellow student, "for, stepping out of his be-ribboned uniform, the distinguished staff-officer was at once a student again, cheerfully accepting and joining company with those who were several years his junior and who had not had active service." His powers of concentration and self-discipline made study easy, and from his first year, when he won the Haswell Prize in zoology, he was well up in the class lists and graduated with second class honours in 1924.

Subsequent to his graduation, he held resident appointments at the Royal Prince Alfred Hospital, the Coast Hospital, the Royal Alexandra Hospital for Children and the South Sydney Women's Hospital. Then, early in 1926, he entered general practice at Edgecliff.

Walter MacCallum was a classical specimen of the good general practitioner. His all-round competence as a physician, his unfailing kindness, his high sense of responsibility and professional dignity, combined in him to make the complete family doctor, and it is difficult to think of anyone who could represent this honoured species more adequately. His fellow practitioners have happy memories of his readiness to be of help, his wisdom as a mentor and his smiling courtesy and friendliness at all times. Walter remained contentedly in general practice up to the time of his enlistment for service in the second World War, although by this time he held the position of honorary assistant physician at both the Royal Prince Alfred Hospital and the Royal Alexandra Hospital for Children. It was only on his return at the end of the war, and after much consideration, that he assumed consultant practice in Macquarie Street.

It was clear, from personal conversations with him, that Walter MacCallum's long association with the Royal Alexandra Hospital for Children was a very happy one, and that he had special affection for this hospital, which he served assiduously for 34 years. He was appointed honorary assistant relieving physician while still a resident medical officer of the hospital, and assumed his duties on the honorary medical staff on commencing practice in 1926. Thence he proceeded to honorary assistant physician in 1936, honorary physician in 1947, and honorary consulting physician in 1955. Many doctors in New South Wales will remember with pleasure and gratitude his teaching of sound commonsense medicine as applied to the child, and will have been influenced by his kindly understanding of parents and their problems.

His association with the Royal Prince Alfred Hospital, commencing as student and resident medical officer, was also extended and satisfying to him. He served in the position of honorary assistant physician to the hospital from 1934 to 1955, when he was appointed honorary consulting physician.

Despite his busy professional life, Walter was most punctilious in his attendance at both hospitals, and his friends often wondered how he found time sufficient for his multifarious tasks. The reply he once made to an inquiry on this subject was characteristically laconic: "Organization, my boy!", he said. And organization it was, of a high order, for it appeared that everything he did was planned, concise, unhurried, orderly and punctual. Punctuality, necessary to his packed day, was ingrained in him, and a colleague, who often marvelled at the precision of his attendance for consultations, discovered that it was his practice to arrive before the appointed time, and after waiting outside in his car, to enter on the tick. When reproved for not coming in at once, he smilingly remarked on the value of time to busy doctors, and made no amendment of this practice. In the same way, his A.I.F. staff officers will remember the quick look at his watch that marked their Brigadier's disapproval of tardy arrivals at conferences—on one occasion salted by the quotation of a Shakespearian line: "And with old woes new wail my dear times waste . . ."

Walter MacCallum's obvious desire to teach and to be of help, and his unfailing courtesy and consideration, made him popular with students, as with medical and nursing staffs. He never overlooked faults or mistakes, but corrected them politely, though insistently. He was inevitably a favourite of nurses, and at the Children's Hospital acted as physician to the nursing staff both before, and for some years after, his retirement from the active staff of the hospital.

Since his service in the second World War included little clinical practice, Walter MacCallum, upon his release from the Army, spent six months of intensive medical work in London, where he lived with his friends Sir Neil and Lady Fairley. This was a particularly happy time, for he had thrown off the heavy burden of his war-time post with his uniform, and soon regained assurance of his competence as a physician—a sheer necessity for one so self-critical and conscientious.

On his return home, he resumed his dual teaching hospital posts, and commenced practice as consultant physician in Macquarie Street, Sydney. Subsequently he was appointed visiting physician to the Prince of Wales Hospital (1946-1949), visiting specialist physician to the 113th Australian General Hospital, Concord (1946-1947) and later to the Repatriation General Hospital, Concord (1947-1959), and honorary consulting physician to the Ryde District Soldiers' Memorial Hospital and the Prince Henry Hospital. In 1946, he was honoured by appointment as honorary physician to the Governor-General.

During this time his talents as an organizer and administrator were placed at the service of The Royal Australasian College of Physicians, of which he had qualified as a Member in 1939 and had been elected Fellow in 1946. He was honorary secretary of the College from 1948 to 1950, and honorary treasurer from 1950 to 1958, serving in both positions with the unobtrusive and unfailing efficiency for which he was noted.

He was also appointed a member of the New South Wales Medical Defence Council in 1956, was a governor of Ascham Girls' School, and at the time of his death was vice-chairman of trustees of Sydney Grammar School.

Walter MacCallum served with great distinction in both World Wars. In the first World War he enlisted as a student, and served as a combatant soldier, from 1915 to 1919, in Gallipoli, Egypt, France and Belgium. On enlistment he joined the 20th Battalion, became lieutenant in 1915, and after service at Gallipoli, was promoted captain, in France, in 1916. In this rank he served as G.S.O.3 at 2nd Australian Divisional Headquarters and, later, in 1917, was appointed Brigade Major, 5th Infantry Brigade. In 1918, he was promoted to the rank of major, and became G.S.O.2 at 2nd Australian Divisional Headquarters. All accounts of his service give high praise to his work as a staff officer, and it is said that brigade orders drafted by him for operations at Mont St. Quentin and Peronne were used as models for later staff classes.

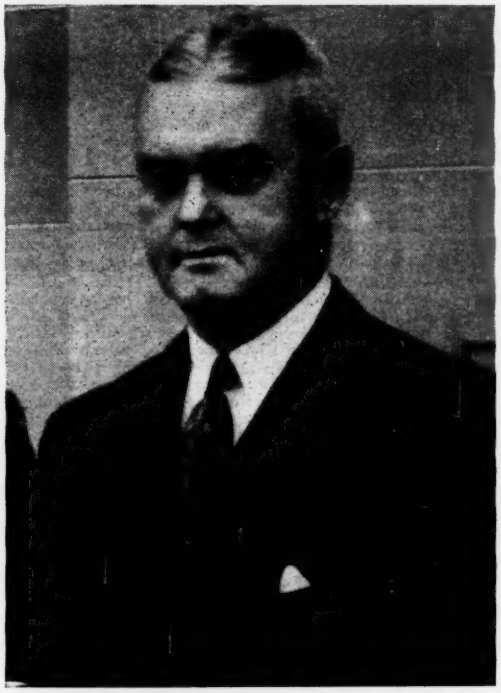
Brigadier A. R. L. Wiltshire, then a battalion commander in the 6th Infantry Brigade, who saw a good deal of MacCallum during the hard-fought actions of this time, remembers him as a first-class staff officer. "He was capable and alert", he notes, "with a great gift for understanding other people's problems and assisting them in every possible way." Brigadier Wiltshire recollects two instances of his initiative and courage:

> In May 1918, in operations in which my battalion (22nd) was concerned, the 5th Brigade were held up by a well-concealed German strong post near Ville-sur-Ancre. Walter MacCallum came up and made a daring personal reconnaissance in the course of which he "pin pointed" the strong post and enabled plans to be put into force that led to its ultimate capture.
>
> In the operations of 31 August and 1 September, 1918, the 5th Brigade in the course of an attack at Mont St. Quentin met strong resistance and had to give some ground. This was apparent to those of us in support but the position became confused owing to conflicting accounts reaching Brigade headquarters. Walter MacCallum came up and made an examination of the position on the spot, doing much to enable plans to be laid for the success of the following attack by the 6th

Brigade, which resulted in the capture of Mont St. Quentin, one of the most important key strongholds in the German front.

The latter action, one of the great Australian victories in France, was frequently referred to by General Lord Rawlinson as "the finest single feat of the war", and by Lieutenant-General Sir John Monash as "overshadowing all the noteworthy incidents of those pregnant days".

By the end of the war, Walter MacCallum had been awarded the D.S.O. and M.C., and had been thrice Mentioned in Dispatches. He was then between 23 and 24 years of age. He was one of a number of youthful and distinguished Australian officers invited at this time to accept a British Army commission — an offer which doubtless had some



attraction for one so obviously suited to the profession of arms. But, as has already been mentioned, on leaving the Army he at once returned to the University, for the commencement of his medical course.

Walter MacCallum joined the Second A.I.F. in 1940, served in Palestine, North Africa, Greece, Crete, the Netherlands Indies and the South-West Pacific, and at the end of his service was Deputy Director-General of Medical Services, with the rank of brigadier. He enlisted in 1940 and went abroad as Registrar of 2/5 Australian General Hospital. He was soon appointed D.A.D.M.S. to 1st Australian Corps, serving in this post in the Libyan and Greek campaigns. Here his great capacity and former experience as a staff officer were at once displayed and were acknowledged at the time in the fullest terms by his D.D.M.S. (Brigadier W. W. S. Johnston). In the constantly changing and often confused events of the rapid advance in Libya, and later in the turmoil of the evacuation of Greece and Crete, he showed his ability to sum up situations with quick perception, and from the outset displayed the qualities that in the future were to be an invaluable asset to a service entirely staffed by civilian doctors, accustomed to independent thought and action. He displayed well-developed powers of observation and memory, precision and patience, untiring endurance, and notable stability and courage in difficult and dangerous situations. Under whatever conditions they were drawn up, his reports and directives were models of clarity and brevity, giving no excuse for misconception or confusion in those for whom they were intended.

The remarkable equanimity that was an essential part of Walter MacCallum's character showed to the full under conditions of stress and danger, and he could work steadily in circumstances that upset the efficiency of most people. Many illustrations of this quality form part of the war memories of his acquaintances. An example is recalled in the occasion of an intense German bombing raid over Elasson, in Greece. While most of those in his immediate vicinity sought refuge with undignified haste in shell-holes and other shelters and work was at an end, MacCallum quietly carried on a telephone conversation in an upstairs room with the rickety old wooden building rocking about him. It was never known how much of such practice was intended as an example to those about him, but in any case, it came naturally to him. If there was good reason for exposing himself in dangerous positions or for remaining under attack on roads when most would find excuse for taking shelter, he obviously thought only of the job in hand. And wherever he went, he was a help and support, straightening out difficulties, listening patiently, giving his directions or advice in the friendly, crisp, often *staccato* voice we remember so well.

Soon after these stirring events, the A.I.F. Training Command was established in Palestine, and included an A.A.M.C. Training Wing, to which all medical personnel arriving from Australia were drafted for training before being posted to units. MacCallum was appointed Commanding Officer of the unit, with the rank of lieutenant-colonel, and in this capacity again showed his flair for organization and leadership.

In January, 1942, Major-General Burston, then D.M.S., A.I.F., was appointed to General Wavell's staff in Java, and Walter MacCallum was among the Australian staff officers attending him. These were the desperate and dark days following the Japanese entry into the war, and it was planned that the whole A.I.F. in the Middle East would land on Java to come under Wavell's command. This was circumvented by the rapid movements of the victorious Japanese. The function of General Burston's team was to carry out preliminary staff work for the provision of medical services in Java, and to select unit sites and evacuation lines. MacCallum accompanied a party sent from Java to assist in the evacuation of Sumatra, following Japanese landings there, and he had a brief and exciting sojourn. The following note describes an incident of this time:

> Walter was calm and courageous, as usual, and quite imperturbable . . . . He went to Palembang to report on a Javanese hospital as a possible site for one of our General Hospitals, and had just started his inspection of the hospital when there was a great outburst of rifle and machine gun fire. He walked over to the window and saw the air thick with Japanese parachute troops. After a brief look, he turned to the Dutch medical officer and said quite calmly, "I don't think we can do any good out there, so we may as well go on with our inspection". He then continued his methodical inspection, apparently unconscious of the battle raging outside. By the time he had finished, the shooting had stopped, and they went out to find that the Japs had been driven off.

He later found that Major-General Clive Steele was attempting to organize the few Dutch troops and civilians in the area and, stripping off his brassard, he at once offered to help. The offer was gladly accepted, and MacCallum was appointed his chief staff officer. It was not possible to organize resistance; but an effective withdrawal was achieved, amid great confusion, along a 300 mile jungle road to Oosthaven, whence many troops and civilians were ferried across the Sunda Straits to Java in a collection of small boats. The A.I.F. party in Sumatra was fortunate in getting back safely to Java in time to be evacuated by sea to Australia with other Australian members of Wavell's Headquarters. This had had a short existence of only six weeks, before the situation in the area became hopeless.

When General Burston reached Australia after this venture, he was appointed Director-General of Medical Services, and on his strong recommendation, Walter MacCallum became Deputy Director-General, with the rank of colonel. It was a time of widespread disaster and defeat, and the organization of the defence of Australia was desperate work. General mobilization was in full swing, the Army Medical Services were disorganized, and the A.I.F. was gradually returning from the Middle East. Walter's experience and ability as a staff officer was invaluable at this exacting time, and General Burston gave unstinted praise to his skilled and devoted services. Up to this time he had hankered after a clinical appointment, for though administration appeared to come naturally to him, and he was at least as skilled in it as any other member of the A.A.M.C., he nevertheless had no special liking for it. At this time, a Headquarters team was gathered which must

surely stand as a pattern of competence. This band of independent-minded and often forceful experts was welded together, largely by MacCallum's unobtrusive influence. He always worked long hours and had an infinite capacity for detailed administration, as well as a depth of vision and a commonsense approach to problems that made him valuable as a counsellor. He was promoted to the rank of brigadier in 1943 and remained the deputy and right hand of the D.G.M.S. until the end of the war.

In November, 1944, Walter MacCallum, still in the position of D.D.G.M.S., was posted to Advanced Land Headquarters, then situated at Hollandia in Dutch New Guinea. It gave him intense satisfaction to be in the field again, and he was in his element. The Advanced Headquarters, with the Commander in Chief, Sir Thomas Blamey, in personal command, soon moved to Morotai in the Moluccas, where Australian troops marshalled for the assault on Borneo, their last stroke against the Japanese enemy. Walter was responsible for the medical plans for the Borneo operations, and worked early and late, in his usual fashion, and with a staff that was devoted to him. He remained in charge at Advanced Headquarters until the operations were successfully completed, and then returned to Land Headquarters in Melbourne. At the end of the war he returned happily to civilian life.

He was awarded the C.B.E. for his "invaluable service", particularly in regard to his Borneo planning, and received Mention in Dispatches for his work in Greece and Crete. No Australian doctor-soldier could have done more, or worked harder, or performed his own particular task better, through the years of war; and none could have been more modest about it.

The MacCallum family life was a complete and happy one, and Walter was devoted to his home. At his sadly unexpected death, he was survived by Mrs. MacCallum, two sons, Peter and Jock, and a daughter, Janet, Mrs. John Lysaght, of Port Kembla.

Walter's death has brought to his friends an overwhelming awareness of how much he meant to them; a realization of what he stood for through the years, and of how greatly he occupied, in his quiet way, their thoughts and affections. He was like a strong, unobtrusive feature in a landscape, constant and unchanging; aloof, yet forming a most important part of the daily scene.

Correspondence.

THE ORGANIZATION OF THE PROFESSION.

SIR: It is surprising that Dr. R. H. Boyt, writing under the above heading (MED. J. AUST., July 2, 1960, page 34) is not better informed regarding the composition of the Council of the Victorian Branch of the British Medical Association and of the Committee of the Medical Society of Victoria, as he has been a member of the Branch and of the Society since 1927.

The composition of the Council and Committee is at present:

Five trustees of the Medical Society of Victoria (*ex officio*): Three general practitioners, one employed in the School Medical Service (formerly a general practitioner for 30 years), one pædiatrician (formerly a general practitioner).

One representative of the Victorian Medical Women's Society: A gynæcologist.

The Director for Victoria of the Australasian Medical Publishing Co. Ltd. (*ex officio*): A physician, formerly a general practitioner.

Twenty Subdivisional representatives elected by members of Subdivisions: Thirteen general practitioners and seven specialists (three surgeons, one psychiatrist, one oto-rhino-laryngologist, one pathologist).

Fourteen members elected by the general body of members: The Chief Health Officer, Victoria; the P.M.O. Repatriation Department; four surgeons, two physicians, one pædiatrician, one radiologist, one obstetrician, three general practitioners.

Two coopted members: The D.G.M.S. (Army), and the Dean of the Faculty of Medicine in the University of Melbourne.

In summary, the Council and Committee consist of: general practitioners, 19; specialists, 19; Government-employed medical officers, 3; university professor, 1; member of Armed Forces, 1.

It is obvious, therefore, that the Council and Committee are fully representative of all sections of the medical profession in Victoria.

Incidentally, the Medical Society of Victoria is not "long since defunct".

Yours, etc.,
C. H. DICKSON,
Medical Secretary.

British Medical Association (Victorian Branch)
and Medical Society of Victoria,
Medical Society Hall,
426 Albert Street,
East Melbourne,
Victoria.
July 7, 1960.

MEDICAL BENEFITS—FOR A SPECIFIED DISEASE.

SIR: To the best of my memory and belief, the expression "for a specified disease" means that you certify the patient is suffering from one of a scheduled list of complaints—and in the case of staphylococcal infection that the condition has been proved bacteriologically. I do not think that prophylactic treatment of specified diseases is covered.

It might be replied, of course, that I should be certain of my information before writing; but I do this deliberately from the point of view of the average busy practitioner who has mislaid his original schedule, and whose memory of the meaning of the expression is going dim. However, I come to the point that there seems to be no compelling law or force to write prescriptions "for free" except either fear of losing a patient or sympathy for his pocket. Each of these motives might be regarded by some as adequate reason for an "economy of truth" in certification; but at least for the wealthy and those adequately covered by insurance—e.g., workers' compensation—the factor of sympathy need not come into the matter.

Now I confess to having prescribed as a pharmaceutical benefit a few treatments of antibiotic prophylactically "for a specified disease", but my conscience cannot be longer stilled and I hope now to be more honest. Recently, however, I had chemist trouble when omitting the magic words, and only write now to adjure my colleagues similarly minded to be strong in the faith of their ancestors and write "private" prescriptions not only for the type of prescriptions above mentioned, but for all prescribing where use of the Pharmaceutical Benefits routine is repugnant or unduly time-consuming.

Again I urge that we do not perjure ourselves in any certification.

Yours, etc.,
C. C. MCKELLAR.

143 Macquarie Street,
Sydney.
July 7, 1960.

CENTRAL DISTRICT AMBULANCE HEADQUARTERS APPEAL.

SIR: Last February, through the courtesy of your Journal, an appeal was made to members of the medical profession to contribute generously to the above appeal. To those who have responded we give our sincere thanks, though on the whole the results have been very disappointing. The outside response has also been far from encouraging, and the hoped-for sum is stil not in sight.

As we know, doctors are constantly being bombarded with requests for donations to numerous funds and charities. Most of these ask for contributions at regular intervals, whereas this is the first and only appeal the Central District Ambulance Service has ever made for a building fund.

Compared with the ambulance headquarters buildings in Melbourne and Brisbane, our present premises are a reproach to our civic pride, being tucked away under Central Railway Station, crowded, uncomfortable and difficult of access.

Doctors are especially concerned with the need for the availability of an efficiently organized ambulance service. It surely behoves them to give this appeal their generous

support. As stated before, donations are deductible for income tax purposes, and the gift of £50 or more will entitle the donor to life membership for self and members of family up to 16 years.

Address for donations: Operation Headquarters Appeal, Central District Ambulance Service, Ambulance Avenue, Railway Square, Sydney.

Yours, etc.,

A. W. J. BULTEAU,
Chairman.

Central District Ambulance Service,
19 Beauty Point Road,
Mosman,
New South Wales.
July 9, 1960.

MEDICAL RESEARCH IN AUSTRALIA.

SIR: I wish very heartily to commend your enterprise in printing, in the issue of June 25, a list of medical research work being done in Australia.

In your introduction you state that it is incomplete, and in order that this can be at least partially rectified, I am forwarding the record of what has been achieved by the Ophthalmic Research Institute of Australia in the matter. Under grants made by this Institute: (i) Dr. Linton, of Perth, conducted an investigation into the composition of the Meibomian secretion, details of which will be published shortly; (ii) Dr. Bishop, of the University of Sydney, was provided with an assistant (Ophthalmic Research Institute of Australia Fellow) to help in his studies on the visual system; (iii) Professor Ida Mann, of Perth, received considerable help in her project which resulted in the isolation of the virus of trachoma; (iv) Dr. H. Greer was enabled to secure the services of a first quality technician to help in the various projects he is conducting in the Pathology Department of the Victorian Eye and Ear Hospital.

I hope that this letter may stimulate others to supply you with information, in order that your task may be made lighter and your list quite complete.

Yours, etc.,

ARCHIE S. ANDERSON,
Chairman of Board.

Ophthalmic Research Institute of Australia,
32 Collins Street,
Melbourne.
July 6, 1960.

POST-GRADUATE DEGREES FOR EXPERIENCED DOCTORS.

SIR: For some considerable time it has seemed to me that there should be in this country post-graduate degrees which would be available only to doctors who have been qualified, and in active practice, for a minimum period of twenty years. There may be others who share that opinion. If so, they are invited to communicate with me. I will then arrange a meeting, at which the first steps in the implementation of that idea will be taken.

Yours, etc.,

J. M. O'CONNOR.

National Mutual Building,
293 Queen Street,
Brisbane, Queensland.
July 14, 1960.

GENERAL PHARMACEUTICAL BENEFITS.

SIR: With impressions of nationalized medicine in England still fresh in my mind, I wish to endorse the uneasiness voiced in your columns by my fellow practitioners on the growing bureaucratic interference with medicine in Australia. The present Pharmaceutical Benefits Scheme appears to me to be a manifestation of Parkinson's Law,[1] in that the constant making, revising and checking of regulations provides employment for an increasing number of civil servants whose vested interest in making work is sheltered under the umbrella of legislation.

As doctors, we are beseiged on one flank by restrictions concerning the prescribing of well-tried remedies, and on the other by a hail of glossy advertisements from mushrooming pharmaceutical firms, who are naturally concerned with maintaining the high cost of drugs. In our dilemma we are in danger of losing sight of our most valuable therapeutic weapon, which is rapport with our patients.

Surely now is the time for us to ask the Government and chemists to handle the administrative side of a pharmaceutical benefits scheme so that we might be free to use our training to treat our patients as we feel they should be treated.

As the precedent of regulation is self-perpetuating, we stand the risk of being bound hand and foot by a web of clerical idiosyncrasies, to be led gently by the nose into the fold of complete nationalization. Let us not through apathy or disunity allow the pen to become mightier than the word.

Yours, etc.,

S. B. FURNASS.

McKell Place,
Goulburn,
New South Wales.
July 1, 1960.

We, the undersigned, wholeheartedly support the expressions made in this letter: R. G. Woods, J. H. Coles, G. H. Kennett, J. P. Lyttle, E. B. Docker, W. J. McCarthy, A. R. Hazelton, K. P. Lyttle, B. W. Coombes, C. Russell-Jones, B. Collings, W. Van Golderen, M. J. O'Neill.

SIR: The recent correspondence in THE MEDICAL JOURNAL OF AUSTRALIA would seem to indicate that very few members of our profession take a kindly view of the recently amended *Pharmaceutical Benefits Act*. I share the view that there are many dangers and anomalies in the system as it is now.

For some years, numerous friendly societies and the Commonwealth Bank of Australia, amongst others, have had comprehensive health insurance systems, which include provisions for the insured either obtaining medicines free or at concessional rates, or for substantial rebates on the cost of medicines. Surely our own Medical Benefits Fund could be extended to include such a scheme, and if a combined approach by all health insurance schemes could persuade the Government to subsidize such a scheme, then it would clearly be to the advantage of all—not least the Government, which would stand to save considerable sums of money. Under such a scheme, freedom of prescribing ought then to be very largely preserved.

Is there any valid reason why such a scheme could and should not be implemented?

Yours, etc.,

W. T. GIBBS,

9 East Street,
Ipswich, Qld.
July 6, 1960.

SIR: When recently the British Medical Association advised the subdivisions to hold meetings to discuss the Pharmaceutical Benefits Scheme, it was rightly mentioned that dissatisfaction with details of the scheme should not be the point at issue, as there was machinery for reviewing and altering details, such as the inclusion or exclusion of particular drugs. However, if the Government had had the courtesy and the sense to confer with the profession prior to the introduction of the new scheme, many of the unsatisfactory details would have been then adjusted. There is evidence that the views of the B.M.A. are not going to receive any more consideration when alterations are wanted than they did initially. Before the B.M.A. council reviews the new scheme next month, it would be very interesting to know (*a*) if any amendments have so far been suggested by them, and (*b*) the result from these suggestions. If the answer to (*a*) is negative, then are we to assume that Council is perfectly satisfied with all the details of the new scheme, despite the many protests from members? And if suggestions have been proposed, then have any changes resulting therefrom been made? If not, then we have an excellent case for refusing further cooperation.

Changes to the scheme may (not must) be adopted by the Minister on recommendation by the Pharmaceutical Benefits Advisory Committee. However, the general body of the profession, through the B.M.A., is not officially represented on this Committee; the members of the Committee are not known; and the recommendations which it makes to the Minister, and the results therefrom, are not not known. Even a question in Parliament merely

[1] "Parkinson's Law, or the Pursuit of Progress", by Professor C. Northcote Parkinson, 1958, Murray, London.

brought the reply that "The Committee's recommendations to the Minister are treated as confidential", and the question as to whether the Committee's advice was ever rejected was not answered.

In view of these facts, it is essential that some details of the scheme are considered. The unnecessary clerical work, the restrictions on prescribing and the omission of certain drugs I detailed in an earlier letter (May 7, 1960). I hope that steps have already been taken to amend the scheme regarding those things which have been supported by other practitioners—but have they? Where is our assurance that changes initiated by the profession really can be made? Nowhere. We have no such assurance at all, but rather a lot of evidence to the contrary. This must surely influence us in a decision to fight this new scheme further.

An analysis of the benefits available under the new scheme is interesting. Although numbered up to 964, there are only 442 items included, and there are only 363 drugs, because many drugs come under more than one item. So much for "nearly a thousand drugs available". Of these drugs there are 607 preparations available, of which 72 (12%) cost 5s. or less—i.e., they are not benefits at all as the Government pays nothing towards their cost and their inclusion on the list is mere fraud. And another 165 items (25%) cost less than 7s.; so that over one-third of so-called benefits attract less than 2s. payment from the Government. The absurdity of "Tabs 25 Repeat 3" costing £1, whereas "Tabs 100" cost 11s. or 12s. (e.g. pentobarbitone) is probably more widely known. Why do we not publicize these facts and our other reasons for dissatisfaction? There is no evidence that we have any power or influence to change them under the present set-up.

Yours, etc.,

20 Kaye Street,
Traralgon,
Victoria.
July 11, 1960.

C. Bridges-Webb.

Sir: Under the above heading there are three letters in the Journal dated July 9, 1960. These all suggest that, as a profession, we shall, by saying "No", be able to halt the process (or progress) of control by regulation and by ministerial whim, flat or whatever you may wish to call it.

This is a pitiful and fanciful dream. We, as a profession, did not elect the Federal Government, and we are not a large enough proportion of the electorate to make our views felt by any direct action. In this view I fear I must disagree with Dr. Everingham, Dr. Hammond and Dr. Rees (Med. J. Aust., May 7, page 748), having lived through a crisis like this before when there was a "battle" with the Government in the United Kingdom over the failure of the Treasury to agree to a scale of fees per capita which was tied to the cost of living—an idea to which the originators of the National Health Service had paid lip-service when the scheme was first foisted on us in 1948 by a Socialist Government.

We can, and must, do as suggested by Dr. C. R. Watson (Med. J. Aust., May 28, 1960)—i.e., spend a few minutes with the electorate every day to explain that there has never been something for nothing under any Government, and that there will be a rise in the taxes in order to pay for the "free" medicine and medical attendance "given" by a government-run service.

Most necessary of all is it that those who have the chance must get at and convince the leaders of the trade unions that the pay rises that they obtained for their rank and file will be as valueless as if they had never been granted if the taxes are increased in order to pay for a vast crowd of clerks and the large offices and mounds of paper without which government control is seemingly impossible.

In the United Kingdom in 1948, many meetings were held which started with an orderly routine, a chairman who held the meeting to order, and the words, "Mr. Chairman and Gentlemen", and finished, as so often they do, with many talking at once and all agreeing that they would not have any part of the National Health Service. It is tragic to have to add to this indictment that, during the last few weeks before the National Health Service commenced, and after avowing in public that this was not for them, many general practitioners called on the clerk to the local executive council (the Health Service lay secretary) and signed, on the dotted line. Frequently these clerks were the same person as was the clerk to the National Health Insurance Scheme, and so it was not difficult to find a reason to go and see him and sign on without the other fellow knowing that he had been double-crossed. Not that it mattered, as he was double-crossing the others himself.

This situation came about because we were not able to see that our own efforts could not affect the Government of the day at all. We were too few there and are too few here, and direct action by us will have no more value than trying to stop a flood with a garden fork.

Indirect action in the consulting room and in the homes of our patients could help our cause if we can be convincing enough. So also could careful propaganda through the Press, which reaches those we wish to reach.

For my part, I already talk to my patients about the sad possibilities the future holds in the light of past experience, and in order to try to show them how already their care by me is being disturbed by outside influences, so that, in place of the question "What is the best treatment for this man?", I am tempted to ask myself, "What does the book allow that is good enough?". This is my standard reply if I am asked if the medicine is "a five-shilling touch": "What does it matter if it is the best I know?"

I am in the least enviable position from many points of view, as I have to do my own dispensing, and so cannot refuse to carry out the demands of the regulations without cutting off a very important proportion of my (and my partner's) income. However, I shall continue to resist the restrictive regulation of medical practice as long as I can, particularly by using those medicines which I know are the ones that are needed at all times, whether or not they are on the "five-shilling touch, Doc".

Yours, etc.,

Box 8,
Brinkworth,
South Australia.
July 12, 1960.

R. Wilson Williams.

SURGERY AND THE GENERAL PRACTITIONER AND PROFESSIONAL UNITY.

Sir: Pertaining to this topic, and possibly unknown to most of your readers, there has been a significant event in Queensland.

We learn from our Sunday papers in Brisbane that the State Health Department intends conducting a "surgical audit" on surgery performed in this State. Apparently it has already been instituted in one teaching hospital, and has resulted in a marked drop in certain types of surgery. It is believed that this event is quite unrelated to the recent *Australian Women's Weekly* article, which has caused so much medical correspondence.

Why do we have to learn these things through the daily Press? There has been no mention of it in the Journal or the recent Newsletter from the Queensland British Medical Association.

Two other facts about Queensland may be mentioned. Firstly, the Minister of Health is a Liberal and a well-known medical practitioner. Secondly, a register of specialists has been in operation here for around twenty years, and, following some initial troubles, has operated well.

It is believed that "surgical audit" is concerned with the assessing and controlling of that vexed question—"Unnecessary surgery".

Yours, etc.,

421 Ruthven Street,
Toowoomba,
Queensland.

Alex McGregor.

[This matter was not mentioned in the Journal since, like Dr. McGregor, we first heard of it through the non-medical Press.—Editor.]

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Advanced Course in Dermatology.

The Post-Graduate Committee in Medicine in the University of Sydney announces that an advanced course in dermatology will be held in the I.C.I. Theatrette, 69 Mac-

quarie Street, Sydney, from Wednesday morning, October 12, to midday on Friday, October 14, 1960. The course is under the supervision of Dr. A. G. Finley, and is open to all interested medical practitioners, who may attend in either a full-time or part-time capacity. It is expected that several distinguished overseas dermatologists will be in Sydney at this time, and some will participate in the lectures and discussions.

The final programme has not yet been completed, but the following speakers and their topics will be included: Dr. J. Walter Wilson (University of Southern California), "The Comparative Pathogenesis of Deep Mycotic Infections"; Dr. J. C. Belisario, "The Modern Treatment of Skin Cancer"; Dr. G. N. Archer, "The Immediate and Delayed Skin Reactions"; Dr. V. J. McGovern, "The Mechanism of Light Sensitivity"; Dr. J. P. O'Brien, "Patterns of Microbic Invasion Through Intact Skin"; Dr. Stephen Fisher, "A Review of Modern Serology"; Mr. D. J. Lee, B.Sc., "Insect Bites"; Professor H. O. Lancaster, "Melanoma and Sunlight"; Professor G. W. Milton, "The Treatment of Melanoma"; Professor W. H. Trethowan and Dr. David Maddison, "The Psychosomatic Aspects of Dermatology"; Professor R. P. Shearman, "Hirsutism"; Dr. D. Officer Brown, "Some Surgical Aspects of the Treatment of Skin Cancer".

The fee for attendance is five guineas, or one guinea per session. Early written application, enclosing remittance, should be made to the Course Secretary, Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney, from whom programmes will be available shortly. Telephones: BU 4497-8. Telegraphic address: "Postgrad Sydney".

Week-End Course in Gastro-Enterology.

The Post-Graduate Committee in Medicine in the University of Sydney announces that a week-end course in gastro-enterology will be held at the Royal Prince Alfred Hospital on September 3 and 4, 1960, under the supervision of Dr. Stanley Goulston. The chairman of the course will be Sir William Morrow, and the programme is as follows:

Saturday, September 3: 10.15 a.m., "The Management of Acute Upper Alimentary Canal Hæmorrhage", Dr. R. S. Packard; 11.20 a.m., panel discussion, "Liver Function Tests and their Relation to Hepatic Disease"; moderator, Professor C. R. B. Blackburn; panel, Dr. W. J. Hensley, Dr. G. T. Stevenson, Dr. J. G. D. Rankin, Dr. D. W. Piper and Dr. B. P. Billington.

Sunday, September 4: 9.15 a.m., "The Management of Acute and Chronic Pancreatitis", Mr. E. V. Barling; 10.15 a.m., "The Management of Acute Gastro-enteritis in Infancy and Early Childhood", Dr. W. Grigor; 11.30 a.m., panel discussion, "The Diagnosis and Management of Steatorrhœa"; moderator, Dr. Bruce Hall; panel, Dr. A. Skyring, Dr. W. B. Hennessy, Dr. M. Playoust and Dr. N. Gallagher; 2 p.m., "The Management of Pyloric Stenosis", Mr. G. D. Tracy; 3 p.m., "The Management of Advanced Malignant Disease of Alimentary Canal", Mr. Paul A. Tomlinson; 4 p.m., panel discussion, "Value of Diagnostic Radiology of Alimentary Canal"; moderator, Sir William Morrow; panel, Dr. Alan R. Colwell, Dr. Mary Cronin, Dr. Brian Frecker, Dr. David Stephen and Dr. Stanley Goulston.

The fee for attendance is three guineas, and early written application for enrolment, enclosing remittance, should be made to the Course Secretary, Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 4497-8. Telegraphic address: "Postgrad Sydney".

Post-Graduate Training Fellowships in Psychiatry.

THE Senate of the University of Sydney has awarded post-graduate training fellowships in psychiatry to Dr. Bernice Beatrice Eldred of Indooroopilly, Brisbane, and Dr. Audrey Greenberg of Waverley, New South Wales.

Notes and News.

Foundation for Research and Treatment of Alcoholism: First National Conference.

The first National Conference on Alcoholism, to be held at the University of New South Wales from August 8 to 12, 1960, will be officially opened by the Commonwealth Minister for Health, Dr. D. A. Cameron. The conference is being arranged by the Foundation for Research and

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JUNE 25, 1960.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia
Acute Rheumatism	1(1)	2(1)	2	..	..	..	..	..	5
Amœbiasis	1	..	5	..	..	..	9	..	15
Ancylostomiasis	..	..	..	..	..	..	..	..	..
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	1	..	..	..	..	..	..	1
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	6(3)	13(12)	..	..	1(1)	7(4)	..	..	27
Diarrhœa (Infantile)	..	..	..	..	..	..	..	..	..
Diphtheria	..	..	..	5(5)	2(2)	..	..	..	7
Dysentery (Bacillary)	..	..	..	3(1)	..	..	..	..	3
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	68(36)	25(13)	33(6)	15(8)	1(1)	1(1)	..	..	143
Infective Hepatitis	..	..	2(1)	..	..	..	..	..	2
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	2	..	2(1)	..	..	..	..	..	4
Leptospirosis	..	..	1(1)	..	..	..	4	..	5
Malaria	3(2)	1	..	..	..	..	..	..	4
Meningococcal Infection	..	..	..	..	..	..	..	..	..
Ophthalmia	..	..	1	..	..	..	..	..	1
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	1(1)	1	..	..	..	..	..	2
Poliomyelitis	..	5(3)	..	..	..	..	..	..	5
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	9(4)	20(14)	1	2(2)	1(1)	..	..	..	33
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	..	1	5(1)	..	..	..	..	..	6
Smallpox	..	..	..	..	3	..	10	..	13
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	24(17)	14(12)	21(14)	8(6)	3(3)	1(1)	..	..	71
Tuberculosis	..	..	..	..	..	..	..	..	..
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

Treatment of Alcoholism (FRATA). The New South Wales State Minister for Health, the Honourable W. F. Sheahan, will attend on most days. The President of the New South Wales Branch of the British Medical Association, Dr. B. A. Cook, will preside at the medical session on the morning of Tuesday, August 9. Dr. Marvin A. Block, Director of the National Council on Alcoholism, New York, and Dr. Joel Fort, Director of the Alcoholic Rehabilitation Clinics, Alameda County, California, will attend the conference. Medical, university and other scientific representatives from New South Wales, Victoria, Queensland and New Zealand will take part. One of the New Zealand representatives is Professor J. E. Caughey, of the Medical School, Otago University. It is desirable that the excellent support for the conference offered in all quarters should be extended and maintained; the conference is considered to mark the biggest single step ever taken to arouse interest in alcoholism as an illness. The conference is open to everybody. The attendance of members of the medical profession will be welcomed, especially at the medical session on Tuesday morning. Further particulars may be obtained from the Executive Director of FRATA, Mr. O. S. Williams; the address of FRATA is G.P.O. Box 3284, Pitt Street, Sydney; the telephone numbers are MA 6153-4.

Australian Radiation Society (Victorian Branch).

A meeting of the Victorian Branch of the Australian Radiation Society will be held on Friday, August 26, 1960, at 5.30 p.m., in the Lecture Theatre of the Cancer Institute, 481 Little Lonsdale Street, Melbourne, C.1. Dr. Peter Alexander, of the Chester Beatty Research Institute, London, will lecture on "The Chemical Basis for Cellular Radiation Effects". All persons interested are invited to attend.

Alcoholism Foundation of Victoria: Annual General Meeting.

The annual general meeting of the Alcoholism Foundation of Victoria will be held on Friday, August 19, 1960, at 8 p.m., at the Assembly Hall, 156 Collins Street, Melbourne. Guest speakers at the meeting will include Dr. Joel Fort and Dr. Marvin Block, two of America's leading psychiatrists specializing in the field of alcoholism. All those interested are invited to attend the meeting. Further information about the Alcoholism Foundation of Victoria may be obtained from the Secretary, M. L. Benjamin, Esq., 2nd Floor, 231 Bourke Street, Melbourne.

Notice.

OPHTHALMOLOGICAL SOCIETY OF NEW SOUTH WALES.

THE Council of the Ophthalmological Society of New South Wales announces that the Norman McAlister Gregg Prize for 1959 was not awarded. In the opinion of the examiners, no entry was of sufficient merit.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Malinowski, Henryk-Leonard, M.D., 1936, (Univ. Bologna) licensed under Section 21c *Medical Practitioners Act*, 1938-1958, 226 Grafton Street, Bondi Junction.

Wright, George Henry, M.B., B.S., 1959 (Univ. Sydney), 1 Rosemount Avenue, Summer Hill.

Deaths.

THE following deaths have been announced:

HUGHES.—Albert Henry Hughes, on July 9, 1960, at Melbourne, Victoria.

CONRICK.—Horatio Victor Patrick Conrick, on July 18, 1960, at Sydney.

Diary for the Month.

AUGUST 2.—New South Wales Branch, B.M.A.: Organization and Science Committee.
AUGUST 3.—Victorian Branch, B.M.A.: Branch Meeting.
AUGUST 3.—Western Australian Branch, B.M.A.: Branch Council.
AUGUST 4.—South Australian Branch, B.M.A.: Council Meeting.
AUGUST 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
AUGUST 11.—New South Wales Branch, B.M.A.: Public Relations Committee.
AUGUST 12.—Tasmanian Branch, B.M.A.: Branch Council.
AUGUST 12.—Queensland Branch, B.M.A.: Council Meeting.
AUGUST 15.—Victorian Branch, B.M.A.: Finance Sub-Committee Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

Authors of papers are asked to state for inclusion in the title their principal qualifications as well as their relevant appointment and/or the unit, hospital or department from which the paper comes.

References to articles and books should be carefully checked. In a reference to an article in a journal the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

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